aws

Routing Control API Reference Guide

Amazon Application Recovery Controller

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Amazon Application Recovery Controller: Routing Control API Reference Guide

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Welcome

Welcome to the Routing Control (Recovery Cluster) API Reference Guide for Amazon Route 53 Application Recovery Controller.

With Route 53 ARC, you can use routing control with extreme reliability to recover applications by rerouting traffic across Availability Zones or AWS Regions. Routing controls are simple on/off switches hosted on a highly available cluster in Route 53 ARC. A cluster provides a set of five redundant Regional endpoints against which you can run API calls to get or update the state of routing controls. To implement failover, you set one routing control to ON and another one to OFF, to reroute traffic from one Availability Zone or AWS Region to another.

Be aware that you must specify a Regional endpoint for a cluster when you work with API cluster operations to get or update routing control states in Route 53 ARC. In addition, you must specify the US West (Oregon) Region for Route 53 ARC API calls. For example, use the parameter `--region us-west-2` with AWS CLI commands. For more information, see Get and update routing control states using the API in the Amazon Route 53 Application Recovery Controller Developer Guide.

This API guide includes information about the API operations for how to get and update routing control states in Route 53 ARC. To work with routing control in Route 53 ARC, you must first create the required components (clusters, control panels, and routing controls) using the recovery cluster configuration API.

For more information about working with routing control in Route 53 ARC, see the following:

- Create clusters, control panels, and routing controls by using API operations. For more information, see the Recovery Control Configuration API Reference Guide for Amazon Route 53 Application Recovery Controller.
- Learn about the components in recovery control, including clusters, routing controls, and control panels, and how to work with Route 53 ARC in the AWS console. For more information, see Recovery control components in the Amazon Route 53 Application Recovery Controller Developer Guide.
- Route 53 ARC also provides readiness checks that continually audit resources to help make sure that your applications are scaled and ready to handle failover traffic. For more information about the related API operations, see the Recovery Readiness API Reference Guide for Amazon Route 53 Application Recovery Controller.

- For more information about creating resilient applications and preparing for recovery readiness with Route 53 ARC, see the Amazon Route 53 Application Recovery Controller Developer Guide.

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Actions

The following actions are supported:

- GetRoutingControlState
- ListRoutingControls
- UpdateRoutingControlState
- UpdateRoutingControlStates

GetRoutingControlState

Get the state for a routing control. A routing control is a simple on/off switch that you can use to route traffic to cells. When a routing control state is set to ON, traffic flows to a cell. When the state is set to OFF, traffic does not flow.

Before you can create a routing control, you must first create a cluster, and then host the control in a control panel on the cluster. For more information, see Create routing control structures in the Amazon Route 53 Application Recovery Controller Developer Guide. You access one of the endpoints for the cluster to get or update the routing control state to redirect traffic for your application.

You must specify Regional endpoints when you work with API cluster operations to get or update routing control states in Route 53 ARC.

To see a code example for getting a routing control state, including accessing Regional cluster endpoints in sequence, see API examples in the Amazon Route 53 Application Recovery Controller Developer Guide.

Learn more about working with routing controls in the following topics in the Amazon Route 53 Application Recovery Controller Developer Guide:

- Viewing and updating routing control states
- Working with routing controls in Route 53 ARC

Request Syntax

```
{
   "RoutingControlArn": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

The request accepts the following data in JSON format.

RoutingControlArn

The Amazon Resource Name (ARN) for the routing control that you want to get the state for.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: ^[A-Za-z0-9:.\/_-]*$

Required: Yes

Response Syntax

```
{
   "RoutingControlArn": "string",
   "RoutingControlName": "string",
   "RoutingControlState": "string"
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

RoutingControlArn

The Amazon Resource Name (ARN) of the response.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: ^[A-Za-z0-9:.\/_-]*$

RoutingControlName

The routing control name.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: ^\S+$

RoutingControlState

The state of the routing control.

Type: String

Valid Values: `On` | `Off`

Errors

For information about the errors that are common to all actions, see Common Error Types.

AccessDeniedException

You don't have sufficient permissions to perform this action.

HTTP Status Code: 400

EndpointTemporarilyUnavailableException

The cluster endpoint isn't available. Try another cluster endpoint.

HTTP Status Code: 400

InternalServerException

There was an unexpected error during processing of the request.

HTTP Status Code: 500

ResourceNotFoundException

The request references a routing control or control panel that was not found.

HTTP Status Code: 400

ThrottlingException

The request was denied because of request throttling.

HTTP Status Code: 400

ValidationException

There was a validation error on the request.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

ListRoutingControls

List routing control names and Amazon Resource Names (ARNs), as well as the routing control state for each routing control, along with the control panel name and control panel ARN for the routing controls. If you specify a control panel ARN, this call lists the routing controls in the control panel. Otherwise, it lists all the routing controls in the cluster.

A routing control is a simple on/off switch in Route 53 ARC that you can use to route traffic to cells. When a routing control state is set to ON, traffic flows to a cell. When the state is set to OFF, traffic does not flow.

Before you can create a routing control, you must first create a cluster, and then host the control in a control panel on the cluster. For more information, see Create routing control structures in the Amazon Route 53 Application Recovery Controller Developer Guide. You access one of the endpoints for the cluster to get or update the routing control state to redirect traffic for your application.

You must specify Regional endpoints when you work with API cluster operations to use this API operation to list routing controls in Route 53 ARC.

Learn more about working with routing controls in the following topics in the Amazon Route 53 Application Recovery Controller Developer Guide:

- Viewing and updating routing control states
- Working with routing controls in Route 53 ARC

Request Syntax

```
{
   "ControlPanelArn": "string",
   "MaxResults": number,
   "NextToken": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

The request accepts the following data in JSON format.

ControlPanelArn

The Amazon Resource Name (ARN) of the control panel of the routing controls to list.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `^[A-Za-z0-9:.\/_-]*$`

Required: No

MaxResults

The number of routing controls objects that you want to return with this call. The default value is 500.

Type: Integer

Valid Range: Minimum value of 1.

Required: No

NextToken

The token for the next set of results. You receive this token from a previous call.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 8096.

Pattern: `[\S]*`

Required: No

Response Syntax

```
{
   "NextToken": "string",
   "RoutingControls": [
      {
         "ControlPanelArn": "string",
         "ControlPanelName": "string",
```

```
            "Owner": "string",
            "RoutingControlArn": "string",
            "RoutingControlName": "string",
            "RoutingControlState": "string"
        }
    ]
}
```

Response Elements

If the action is successful, the service sends back an HTTP 200 response.

The following data is returned in JSON format by the service.

NextToken

The token for the next set of results. You receive this token from a previous call.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 8096.

Pattern: [\S]*

RoutingControls

The list of routing controls.

Type: Array of RoutingControl objects

Errors

For information about the errors that are common to all actions, see Common Error Types.

AccessDeniedException

You don't have sufficient permissions to perform this action.

HTTP Status Code: 400

EndpointTemporarilyUnavailableException

The cluster endpoint isn't available. Try another cluster endpoint.

HTTP Status Code: 400

InternalServerException

There was an unexpected error during processing of the request.

HTTP Status Code: 500

ResourceNotFoundException

The request references a routing control or control panel that was not found.

HTTP Status Code: 400

ThrottlingException

The request was denied because of request throttling.

HTTP Status Code: 400

ValidationException

There was a validation error on the request.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

UpdateRoutingControlState

Set the state of the routing control to reroute traffic. You can set the value to ON or OFF. When the state is ON, traffic flows to a cell. When the state is OFF, traffic does not flow.

With Route 53 ARC, you can add safety rules for routing controls, which are safeguards for routing control state updates that help prevent unexpected outcomes, like fail open traffic routing. However, there are scenarios when you might want to bypass the routing control safeguards that are enforced with safety rules that you've configured. For example, you might want to fail over quickly for disaster recovery, and one or more safety rules might be unexpectedly preventing you from updating a routing control state to reroute traffic. In a "break glass" scenario like this, you can override one or more safety rules to change a routing control state and fail over your application.

The `SafetyRulesToOverride` property enables you override one or more safety rules and update routing control states. For more information, see Override safety rules to reroute traffic in the Amazon Route 53 Application Recovery Controller Developer Guide.

You must specify Regional endpoints when you work with API cluster operations to get or update routing control states in Route 53 ARC.

To see a code example for getting a routing control state, including accessing Regional cluster endpoints in sequence, see API examples in the Amazon Route 53 Application Recovery Controller Developer Guide.

- Viewing and updating routing control states
- Working with routing controls overall

Request Syntax

```
{
   "RoutingControlArn": "string",
   "RoutingControlState": "string",
   "SafetyRulesToOverride": [ "string" ]
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

The request accepts the following data in JSON format.

RoutingControlArn

The Amazon Resource Name (ARN) for the routing control that you want to update the state for.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `^[A-Za-z0-9:.\/_-]*$`

Required: Yes

RoutingControlState

The state of the routing control. You can set the value to ON or OFF.

Type: String

Valid Values: `On | Off`

Required: Yes

SafetyRulesToOverride

The Amazon Resource Names (ARNs) for the safety rules that you want to override when you're updating the state of a routing control. You can override one safety rule or multiple safety rules by including one or more ARNs, separated by commas.

For more information, see Override safety rules to reroute traffic in the Amazon Route 53 Application Recovery Controller Developer Guide.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `^[A-Za-z0-9:.\/_-]*$`

Required: No

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

For information about the errors that are common to all actions, see Common Error Types.

AccessDeniedException

You don't have sufficient permissions to perform this action.

HTTP Status Code: 400

ConflictException

There was a conflict with this request. Try again.

HTTP Status Code: 400

EndpointTemporarilyUnavailableException

The cluster endpoint isn't available. Try another cluster endpoint.

HTTP Status Code: 400

InternalServerException

There was an unexpected error during processing of the request.

HTTP Status Code: 500

ResourceNotFoundException

The request references a routing control or control panel that was not found.

HTTP Status Code: 400

ThrottlingException

The request was denied because of request throttling.

HTTP Status Code: 400

ValidationException

There was a validation error on the request.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

UpdateRoutingControlStates

Set multiple routing control states. You can set the value for each state to be ON or OFF. When the state is ON, traffic flows to a cell. When it's OFF, traffic does not flow.

With Route 53 ARC, you can add safety rules for routing controls, which are safeguards for routing control state updates that help prevent unexpected outcomes, like fail open traffic routing. However, there are scenarios when you might want to bypass the routing control safeguards that are enforced with safety rules that you've configured. For example, you might want to fail over quickly for disaster recovery, and one or more safety rules might be unexpectedly preventing you from updating a routing control state to reroute traffic. In a "break glass" scenario like this, you can override one or more safety rules to change a routing control state and fail over your application.

The `SafetyRulesToOverride` property enables you override one or more safety rules and update routing control states. For more information, see Override safety rules to reroute traffic in the Amazon Route 53 Application Recovery Controller Developer Guide.

You must specify Regional endpoints when you work with API cluster operations to get or update routing control states in Route 53 ARC.

To see a code example for getting a routing control state, including accessing Regional cluster endpoints in sequence, see API examples in the Amazon Route 53 Application Recovery Controller Developer Guide.

- Viewing and updating routing control states
- Working with routing controls overall

Request Syntax

```
{
   "SafetyRulesToOverride": [ "string" ],
   "UpdateRoutingControlStateEntries": [
      {
         "RoutingControlArn": "string",
         "RoutingControlState": "string"
      }
   ]
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters.

The request accepts the following data in JSON format.

SafetyRulesToOverride

The Amazon Resource Names (ARNs) for the safety rules that you want to override when you're updating routing control states. You can override one safety rule or multiple safety rules by including one or more ARNs, separated by commas.

For more information, see Override safety rules to reroute traffic in the Amazon Route 53 Application Recovery Controller Developer Guide.

Type: Array of strings

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `^[A-Za-z0-9:.\/_-]*$`

Required: No

UpdateRoutingControlStateEntries

A set of routing control entries that you want to update.

Type: Array of UpdateRoutingControlStateEntry objects

Required: Yes

Response Elements

If the action is successful, the service sends back an HTTP 200 response with an empty HTTP body.

Errors

For information about the errors that are common to all actions, see Common Error Types.

AccessDeniedException

You don't have sufficient permissions to perform this action.

HTTP Status Code: 400

ConflictException

There was a conflict with this request. Try again.

HTTP Status Code: 400

EndpointTemporarilyUnavailableException

The cluster endpoint isn't available. Try another cluster endpoint.

HTTP Status Code: 400

InternalServerException

There was an unexpected error during processing of the request.

HTTP Status Code: 500

ResourceNotFoundException

The request references a routing control or control panel that was not found.

HTTP Status Code: 400

ServiceLimitExceededException

The request can't update that many routing control states at the same time. Try again with fewer routing control states.

limitCode

The code of the limit that was exceeded.

resourceId

The resource identifier of the limit that was exceeded.

resourceType

The resource type of the limit that was exceeded.

serviceCode

The service code of the limit that was exceeded.

HTTP Status Code: 400

ThrottlingException

The request was denied because of request throttling.

HTTP Status Code: 400

ValidationException

There was a validation error on the request.

HTTP Status Code: 400

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS Command Line Interface V2
- AWS SDK for .NET V4
- AWS SDK for C++
- AWS SDK for Go v2
- AWS SDK for Java V2
- AWS SDK for JavaScript V3
- AWS SDK for Kotlin
- AWS SDK for PHP V3
- AWS SDK for Python (Boto3)
- AWS SDK for Ruby V3

Data Types

The Route53 Recovery Cluster API contains several data types that various actions use. This section describes each data type in detail.

> **Note**
>
> The order of each element in a data type structure is not guaranteed. Applications should not assume a particular order.

The following data types are supported:

- RoutingControl
- UpdateRoutingControlStateEntry
- ValidationExceptionField

RoutingControl

A routing control, which is a simple on/off switch that you can use to route traffic to cells. When a routing control state is set to ON, traffic flows to a cell. When the state is set to OFF, traffic does not flow.

Contents

ControlPanelArn

The Amazon Resource Name (ARN) of the control panel where the routing control is located.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `^[A-Za-z0-9:.\/_-]*$`

Required: No

ControlPanelName

The name of the control panel where the routing control is located. Only ASCII characters are supported for control panel names.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `^\S+$`

Required: No

Owner

The AWS account ID of the routing control owner.

Type: String

Length Constraints: Minimum length of 12. Maximum length of 1024.

Pattern: `^\S+$`

Required: No

RoutingControlArn

The Amazon Resource Name (ARN) of the routing control.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `^[A-Za-z0-9:.\/_-]*$`

Required: No

RoutingControlName

The name of the routing control.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 64.

Pattern: `^\S+$`

Required: No

RoutingControlState

The current state of the routing control. When a routing control state is set to ON, traffic flows to a cell. When the state is set to OFF, traffic does not flow.

Type: String

Valid Values: `On | Off`

Required: No

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

UpdateRoutingControlStateEntry

A routing control state entry.

Contents

RoutingControlArn

The Amazon Resource Name (ARN) for a routing control state entry.

Type: String

Length Constraints: Minimum length of 1. Maximum length of 255.

Pattern: `^[A-Za-z0-9:.\/_-]*$`

Required: Yes

RoutingControlState

The routing control state in a set of routing control state entries.

Type: String

Valid Values: `On | Off`

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

ValidationExceptionField

There was a validation error on the request.

Contents

message

Information about the validation exception.

Type: String

Required: Yes

name

The field that had the validation exception.

Type: String

Required: Yes

See Also

For more information about using this API in one of the language-specific AWS SDKs, see the following:

- AWS SDK for C++
- AWS SDK for Java V2
- AWS SDK for Ruby V3

Common Parameters

The following list contains the parameters that all actions use for signing Signature Version 4 requests with a query string. Any action-specific parameters are listed in the topic for that action. For more information about Signature Version 4, see Signing AWS API requests in the *IAM User Guide*.

X-Amz-Algorithm

The hash algorithm that you used to create the request signature.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string

Valid Values: `AWS4-HMAC-SHA256`

Required: Conditional

X-Amz-Credential

The credential scope value, which is a string that includes your access key, the date, the region you are targeting, the service you are requesting, and a termination string ("aws4_request"). The value is expressed in the following format: *access_key*/*YYYYMMDD*/*region*/*service*/aws4_request.

For more information, see Create a signed AWS API request in the *IAM User Guide*.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string

Required: Conditional

X-Amz-Date

The date that is used to create the signature. The format must be ISO 8601 basic format (YYYYMMDD'T'HHMMSS'Z'). For example, the following date time is a valid X-Amz-Date value: `20120325T120000Z`.

Condition: X-Amz-Date is optional for all requests; it can be used to override the date used for signing requests. If the Date header is specified in the ISO 8601 basic format, X-Amz-Date is not required. When X-Amz-Date is used, it always overrides the value of the Date header. For more information, see Elements of an AWS API request signature in the *IAM User Guide*.

Type: string

Required: Conditional

X-Amz-Security-Token

The temporary security token that was obtained through a call to AWS Security Token Service (AWS STS). For a list of services that support temporary security credentials from AWS STS, see AWS services that work with IAM in the *IAM User Guide*.

Condition: If you're using temporary security credentials from AWS STS, you must include the security token.

Type: string

Required: Conditional

X-Amz-Signature

Specifies the hex-encoded signature that was calculated from the string to sign and the derived signing key.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string

Required: Conditional

X-Amz-SignedHeaders

Specifies all the HTTP headers that were included as part of the canonical request. For more information about specifying signed headers, see Create a signed AWS API request in the *IAM User Guide*.

Condition: Specify this parameter when you include authentication information in a query string instead of in the HTTP authorization header.

Type: string

Required: Conditional

Common Error Types

This section lists common error types that this AWS service may return. Not all services return all error types listed here. For errors specific to an API action for this service, see the topic for that API action.

AccessDeniedException

You don't have permission to perform this action. Verify that your IAM policy includes the required permissions.

HTTP Status Code: 403

ExpiredTokenException

The security token included in the request has expired. Request a new security token and try again.

HTTP Status Code: 403

IncompleteSignature

The request signature doesn't conform to AWS standards. Verify that you're using valid AWS credentials and that your request is properly formatted. If you're using an SDK, ensure it's up to date.

HTTP Status Code: 403

InternalFailure

The request can't be processed right now because of an internal server issue. Try again later. If the problem persists, contact AWS Support.

HTTP Status Code: 500

MalformedHttpRequestException

The request body can't be processed. This typically happens when the request body can't be decompressed using the specified content encoding algorithm. Verify that the content encoding header matches the compression format used.

HTTP Status Code: 400

NotAuthorized

You don't have permissions to perform this action. Verify that your IAM policy includes the required permissions.

HTTP Status Code: 401

OptInRequired

Your AWS account needs a subscription for this service. Verify that you've enabled the service in your account.

HTTP Status Code: 403

RequestAbortedException

The request was aborted before a response could be returned. This typically happens when the client closes the connection.

HTTP Status Code: 400

RequestEntityTooLargeException

The request entity is too large. Reduce the size of the request body and try again.

HTTP Status Code: 413

RequestTimeoutException

The request timed out. The server didn't receive the complete request within the expected time frame. Try again.

HTTP Status Code: 408

ServiceUnavailable

The service is temporarily unavailable. Try again later.

HTTP Status Code: 503

ThrottlingException

Your request rate is too high. The AWS SDKs automatically retry requests that receive this exception. Reduce the frequency of requests.

HTTP Status Code: 400

UnknownOperationException

The action or operation isn't recognized. Verify that the action name is spelled correctly and that it's supported by the API version you're using.

HTTP Status Code: 404

UnrecognizedClientException

The X.509 certificate or AWS access key ID you provided doesn't exist in our records. Verify that you're using valid credentials and that they haven't expired.

HTTP Status Code: 403

ValidationError

The input doesn't meet the required format or constraints. Check that all required parameters are included and that values are valid.

HTTP Status Code: 400