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Welcome

AWS Cost Explorer Service

The Cost Explorer API allows you to programmatically query your cost and usage data. You can query for aggregated data such as total monthly costs or total daily usage. You can also query for granular data, such as the number of daily write operations for Amazon DynamoDB database tables in your production environment.

Service Endpoint

The Cost Explorer API provides the following endpoint:

- https://ce.us-east-1.amazonaws.com

For information about costs associated with the Cost Explorer API, see AWS Cost Management Pricing.

AWS Budgets

The AWS Budgets API enables you to use AWS Budgets to plan your service usage, service costs, and instance reservations. The API reference provides descriptions, syntax, and usage examples for each of the actions and data types for AWS Budgets.

Budgets provide you with a way to see the following information:

- How close your plan is to your budgeted amount or to the free tier limits
- Your usage-to-date, including how much you’ve used of your Reserved Instances (RIs)
- Your current estimated charges from AWS, and how much your predicted usage will accrue in charges by the end of the month
- How much of your budget has been used

AWS updates your budget status several times a day. Budgets track your unblended costs, subscriptions, refunds, and RIs. You can create the following types of budgets:

- **Cost budgets** - Plan how much you want to spend on a service.
- **Usage budgets** - Plan how much you want to use one or more services.
- **RI utilization budgets** - Define a utilization threshold, and receive alerts when your RI usage falls below that threshold. This lets you see if your RIs are unused or under-utilized.
- **RI coverage budgets** - Define a coverage threshold, and receive alerts when the number of your instance hours that are covered by RIs fall below that threshold. This lets you see how much of your instance usage is covered by a reservation.

Service Endpoint

The AWS Budgets API provides the following endpoint:

- https://budgets.amazonaws.com
For information about costs that are associated with the AWS Budgets API, see AWS Cost Management Pricing.

AWS Price List Service

AWS Price List Service API is a centralized and convenient way to programmatically query Amazon Web Services for services, products, and pricing information. The AWS Price List Service uses standardized product attributes such as Location, Storage Class, and Operating System, and provides prices at the SKU level. You can use the AWS Price List Service to build cost control and scenario planning tools, reconcile billing data, forecast future spend for budgeting purposes, and provide cost benefit analysis that compare your internal workloads with AWS.

Use GetServices without a service code to retrieve the service codes for all AWS services, then GetServices with a service code to retrieve the attribute names for that service. After you have the service code and attribute names, you can use GetAttributeValues to see what values are available for an attribute. With the service code and an attribute name and value, you can use GetProducts to find specific products that you're interested in, such as an AmazonEC2 instance, with a Provisioned IOPS volumeType.

Service Endpoint

AWS Price List Service API provides the following two endpoints:

- https://api.pricing.us-east-1.amazonaws.com
- https://api.pricing.ap-south-1.amazonaws.com
Actions

The following actions are supported by AWS Cost Explorer Service:

• GetCostAndUsage (p. 4)
• GetDimensionValues (p. 10)
• GetReservationCoverage (p. 16)
• GetReservationPurchaseRecommendation (p. 22)
• GetReservationUtilization (p. 27)
• GetTags (p. 33)

The following actions are supported by AWS Budgets:

• CreateBudget (p. 37)
• CreateNotification (p. 41)
• CreateSubscriber (p. 44)
• DeleteBudget (p. 47)
• DeleteNotification (p. 49)
• DeleteSubscriber (p. 52)
• DescribeBudget (p. 55)
• DescribeBudgets (p. 59)
• DescribeNotificationsForBudget (p. 63)
• DescribeSubscribersForNotification (p. 67)
• UpdateBudget (p. 71)
• UpdateNotification (p. 75)
• UpdateSubscriber (p. 78)

The following actions are supported by AWS Price List Service:

• DescribeServices (p. 81)
• GetAttributeValues (p. 85)
• GetProducts (p. 89)

AWS Cost Explorer Service

The following actions are supported by AWS Cost Explorer Service:

• GetCostAndUsage (p. 4)
• GetDimensionValues (p. 10)
• GetReservationCoverage (p. 16)
• GetReservationPurchaseRecommendation (p. 22)
• GetReservationUtilization (p. 27)
• GetTags (p. 33)
GetCostAndUsage

Service: AWS Cost Explorer Service

Retrieves cost and usage metrics for your account. You can specify which cost and usage-related metric, such as BlendedCosts or UsageQuantity, that you want the request to return. You can also filter and group your data by various dimensions, such as SERVICE or AZ, in a specific time range. For a complete list of valid dimensions, see the GetDimensionValues operation. Master accounts in an organization in AWS Organizations have access to all member accounts.

Request Syntax

```
{
  "Filter": {
    "And": [
      "Expression"
    ],
    "Dimensions": {
      "Key": "string",
      "Values": [ "string" ]
    },
    "Not": "Expression",
    "Or": [ 
      "Expression"
    ],
    "Tags": {
      "Key": "string",
      "Values": [ "string" ]
    }
  },
  "Granularity": "string",
  "GroupBy": [
    { 
      "Key": "string",
      "Type": "string"
    }
  ],
  "Metrics": [ "string" ],
  "NextPageToken": "string",
  "TimePeriod": {
    "End": "string",
    "Start": "string"
  }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

Filter (p. 4)

Filters AWS costs by different dimensions. For example, you can specify SERVICE and LINKED_ACCOUNT and get the costs that are associated with that account's usage of that service. You can nest Expression objects to define any combination of dimension filters. For more information, see Expression.

Type: Expression (p. 104) object
Granularity (p. 4)

Sets the AWS cost granularity to MONTHLY or DAILY. If Granularity isn't set, the response object doesn't include the Granularity, either MONTHLY or DAILY.

Type: String

Valid Values: DAILY | MONTHLY

Required: No

GroupBy (p. 4)

You can group AWS costs using up to two different groups, either dimensions, tag keys, or both. When you group by tag key, you get all tag values, including empty strings.

Valid values are AZ, INSTANCE_TYPE, LEGAL_ENTITY_NAME, LINKED_ACCOUNT, OPERATION, PLATFORM, PURCHASE_TYPE, SERVICE, TAGS, TENANCY, and USAGE_TYPE.

Type: Array of GroupDefinition (p. 107) objects

Required: No

Metrics (p. 4)

Which metrics are returned in the query. For more information about blended and unblended rates, see Why does the "blended" annotation appear on some line items in my bill?

Valid values are BlendedCost, UnblendedCost, and UsageQuantity.

Note

If you return the UsageQuantity metric, the service aggregates all usage numbers without taking into account the units. For example, if you aggregate usageQuantity across all of EC2, the results aren't meaningful because EC2 compute hours and data transfer are measured in different units (for example, hours vs. GB). To get more meaningful UsageQuantity metrics, filter by UsageType or UsageTypeGroups.

Metrics is required for GetCostAndUsage requests.

Type: Array of strings

Required: No

NextPageToken (p. 4)

The token to retrieve the next set of results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

Required: No

TimePeriod (p. 4)

Sets the start and end dates for retrieving AWS costs. The start date is inclusive, but the end date is exclusive. For example, if start is 2017-01-01 and end is 2017-05-01, then the cost and usage data is retrieved from 2017-01-01 up to and including 2017-04-30 but not including 2017-05-01.

Type: DateInterval (p. 98) object
Required: No

Response Syntax

```json
{
   "GroupDefinitions": [
      {
         "Key": "string",
         "Type": "string"
      }
   ],
   "NextPageToken": "string",
   "ResultsByTime": [
      {
         "Estimated": boolean,
         "Groups": [
            {
               "Keys": [ "string" ],
               "Metrics": {
                  "string": {
                     "Amount": "string",
                     "Unit": "string"
                  }
               }
            }
         ],
         "TimePeriod": {
            "End": "string",
            "Start": "string"
         },
         "Total": {
            "string": {
               "Amount": "string",
               "Unit": "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.

**GroupDefinitions (p. 6)**

The groups that are specified by the Filter or GroupBy parameters in the request.

Type: Array of GroupDefinition (p. 107) objects

**NextPageToken (p. 6)**

The token for the next set of retrievable results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

**ResultsByTime (p. 6)**

The time period that is covered by the results in the response.
Type: Array of ResultByTime (p. 122) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).

BillExpirationException

The requested report expired. Update the date interval and try again.

HTTP Status Code: 400

DataUnavailableException

The requested data is unavailable.

HTTP Status Code: 400

InvalidNextTokenException

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400

LimitExceededException

You made too many calls in a short period of time. Try again later.

HTTP Status Code: 400

RequestChangedException

Your request parameters changed between pages. Try again with the old parameters or without a pagination token.

HTTP Status Code: 400

Example

The following is a sample request and response of the GetCostAndUsage operation that allows you to retrieve your Amazon S3 costs. For more complex examples, such as multi-level groupings, see Expression.

Sample Request

```bash
POST / HTTP/1.1
Host: api.ce.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
   SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSInsightsIndexService.GetCostAndUsage
{
   "TimePeriod": {
      "Start":"2017-09-01",
      "End": "2017-10-01"
   },
```
"Granularity": "MONTHLY",
"Filter": {
  "Dimensions": {
    "Key": "SERVICE",
    "Values": [
      "Amazon Simple Storage Service"
    ]
  }
},
"GroupBy": [
  {
    "Type": "DIMENSION",
    "Key": "SERVICE"
  },
  {
    "Type": "TAG",
    "Key": "Environment"
  }
],
"Metrics": ["BlendedCost", "UnblendedCost", "UsageQuantity"]

Sample Response

HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
  "GroupDefinitions": [
    {
      "Key": "SERVICE",
      "Type": "DIMENSION"
    },
    {
      "Key": "Environment",
      "Type": "TAG"
    }
  ],
  "ResultsByTime": [
    {
      "Estimated": false,
      "Groups": [
        {
          "Keys": [
            "Amazon Simple Storage Service",
            "Environment$Prod"
          ],
          "Metrics": {
            "BlendedCost": {
              "Amount": "39.1603300457",
              "Unit": "USD"
            },
            "UnblendedCost": {
              "Amount": "39.1603300457",
              "Unit": "USD"
            },
            "UsageQuantity": {
              "Amount": "173842.5440074444",
              "Unit": "N/A"
            }
          }
        }
      ]
    }
  ]
}
AWS Cost Explorer Service Cost Management APIs
GetCostAndUsage

```
{
  "Keys": [
    "Amazon Simple Storage Service",
    "Environment#Test"
  ],
  "Metrics": {
    "BlendedCost": {
      "Amount": "0.1337464807",
      "Unit": "USD"
    },
    "UnblendedCost": {
      "Amount": "0.1337464807",
      "Unit": "USD"
    },
    "UsageQuantity": {
      "Amount": "15992.0786663399",
      "Unit": "N/A"
    }
  },
  "TimePeriod": {
    "End": "2017-10-01",
    "Start": "2017-09-01"
  },
  "Total": {}
}
```

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetDimensionValues
Service: AWS Cost Explorer Service

Retrieves all available filter values for a specified filter over a period of time. You can search the
dimension values for an arbitrary string.

Request Syntax

```
{
  "Context": "string",
  "Dimension": "string",
  "NextPageToken": "string",
  "SearchString": "string",
  "TimePeriod": {
    "End": "string",
    "Start": "string"
  }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common
Parameters (p. 140).

The request accepts the following data in JSON format.

Context (p. 10)

The context for the call to GetDimensionValues. This can be RESERVATIONS or
COST_AND_USAGE. The default value is COST_AND_USAGE. If the context is set to RESERVATIONS,
the resulting dimension values can be used in the GetReservationUtilization operation.
If the context is set to COST_AND_USAGE the resulting dimension values can be used in the
GetCostAndUsage operation.

If you set the context to COST_AND_USAGE, you can use the following dimensions for searching:

- **AZ** - The Availability Zone. An example is us-east-1a.
- **DATABASE_ENGINE** - The Amazon Relational Database Service database. Examples are Aurora or
  MySQL.
- **INSTANCE_TYPE** - The type of EC2 instance. An example is m4.xlarge.
- **LEGAL_ENTITY_NAME** - The name of the organization that sells you AWS services, such as Amazon
  Web Services.
- **LINKED_ACCOUNT** - The description in the attribute map that includes the full name of the
  member account. The value field contains the AWS ID of the member account.
- **OPERATING_SYSTEM** - The operating system. Examples are Windows or Linux.
- **OPERATION** - The action performed. Examples include RunInstance and CreateBucket.
- **PLATFORM** - The EC2 operating system. Examples are Windows or Linux.
- **PURCHASE_TYPE** - The reservation type of the purchase to which this usage is related. Examples
  include On-Demand Instances and Standard Reserved Instances.
- **SERVICE** - The AWS service such as Amazon DynamoDB.
- **USAGE_TYPE** - The type of usage. An example is DataTransfer-In-Bytes. The response for the
  GetDimensionValues operation includes a unit attribute. Examples include GB and Hrs.
- **USAGE_TYPE_GROUP** - The grouping of common usage types. An example is EC2: CloudWatch –
  Alarms. The response for this operation includes a unit attribute.
• RECORD_TYPE - The different types of charges such as RI fees, usage costs, tax refunds, and credits.

If you set the context to RESERVATIONS, you can use the following dimensions for searching:
  • AZ - The Availability Zone. An example is us-east-1a.
  • CACHE_ENGINE - The Amazon ElastiCache operating system. Examples are Windows or Linux.
  • DEPLOYMENT_OPTION - The scope of Amazon Relational Database Service deployments. Valid values are SingleAZ and MultiAZ.
  • INSTANCE_TYPE - The type of EC2 instance. An example is m4.xlarge.
  • LINKED_ACCOUNT - The description in the attribute map that includes the full name of the member account. The value field contains the AWS ID of the member account.
  • PLATFORM - The EC2 operating system. Examples are Windows or Linux.
  • REGION - The AWS Region.
  • SCOPE (Utilization only) - The scope of a Reserved Instance (RI). Values are regional or a single Availability Zone.
  • TAG (Coverage only) - The tags that are associated with a Reserved Instance (RI).
  • TENANCY - The tenancy of a resource. Examples are shared or dedicated.

Type: String

Valid Values: COST_AND_USAGE | RESERVATIONS

Required: No

Dimension (p. 10)

The name of the dimension. Each Dimension is available for different a Context. For more information, see Context.

Type: String

Valid Values: AZ | INSTANCE_TYPE | LINKED_ACCOUNT | OPERATION | PURCHASE_TYPE | REGION | SERVICE | USAGE_TYPE | USAGE_TYPE_GROUP | RECORD_TYPE | OPERATING_SYSTEM | TENANCY | SCOPE | PLATFORM | SUBSCRIPTION_ID | LEGAL_ENTITY_NAME | DEPLOYMENT_OPTION | DATABASE_ENGINE | CACHE_ENGINE | INSTANCE_TYPE_FAMILY

Required: Yes

NextPageToken (p. 10)

The token to retrieve the next set of results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

Required: No

SearchString (p. 10)

The value that you want to search the filter values for.

Type: String

Required: No

TimePeriod (p. 10)

The start and end dates for retrieving the dimension values. The start date is inclusive, but the end date is exclusive. For example, if start is 2017-01-01 and end is 2017-05-01, then the cost
and usage data is retrieved from 2017-01-01 up to and including 2017-04-30 but not including 2017-05-01.

Type: DateInterval (p. 98) object

Required: Yes

Response Syntax

```json
{
    "DimensionValues": [
        {
            "Attributes": {
                "string": "string"
            },
            "Value": "string"
        }
    ],
    "NextPageToken": "string",
    "ReturnSize": number,
    "TotalSize": number
}
```

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.

**DimensionValues (p. 12)**

The filters that you used to filter your request. Some dimensions are available only for a specific context:

If you set the context to COST_AND_USAGE, you can use the following dimensions for searching:

- AZ - The Availability Zone. An example is us-east-1a.
- DATABASE_ENGINE - The Amazon Relational Database Service database. Examples are Aurora or MySQL.
- INSTANCE_TYPE - The type of EC2 instance. An example is m4.xlarge.
- LEGAL_ENTITY_NAME - The name of the organization that sells you AWS services, such as Amazon Web Services.
- LINKED_ACCOUNT - The description in the attribute map that includes the full name of the member account. The value field contains the AWS ID of the member account.
- OPERATING_SYSTEM - The operating system. Examples are Windows or Linux.
- OPERATION - The action performed. Examples include RunInstance and CreateBucket.
- PLATFORM - The EC2 operating system. Examples are Windows or Linux.
- PURCHASE_TYPE - The reservation type of the purchase to which this usage is related. Examples include On-Demand Instances and Standard Reserved Instances.
- SERVICE - The AWS service such as Amazon DynamoDB.
- USAGE_TYPE - The type of usage. An example is DataTransfer-In-Bytes. The response for the GetDimensionValues operation includes a unit attribute. Examples include GB and Hrs.
- USAGE_TYPE_GROUP - The grouping of common usage types. An example is EC2: CloudWatch – Alarms. The response for this operation includes a unit attribute.
• RECORD_TYPE - The different types of charges such as RI fees, usage costs, tax refunds, and credits.

If you set the context to RESERVATIONS, you can use the following dimensions for searching:
• AZ - The Availability Zone. An example is us-east-1a.
• CACHE_ENGINE - The Amazon ElastiCache operating system. Examples are Windows or Linux.
• DEPLOYMENT_OPTION - The scope of Amazon Relational Database Service deployments. Valid values are SingleAz and MultiAz.
• INSTANCE_TYPE - The type of EC2 instance. An example is m4.xlarge.
• LINKED_ACCOUNT - The description in the attribute map that includes the full name of the member account. The value field contains the AWS ID of the member account.
• PLATFORM - The EC2 operating system. Examples are Windows or Linux.
• REGION - The AWS Region.
• SCOPE (Utilization only) - The scope of a Reserved Instance (RI). Values are regional or a single Availability Zone.
• TAG (Coverage only) - The tags that are associated with a Reserved Instance (RI).
• TENANCY - The tenancy of a resource. Examples are shared or dedicated.

Type: Array of DimensionValuesWithAttributes (p. 100) objects

NextPageToken (p. 12)

The token for the next set of retrievable results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

ReturnSize (p. 12)

The number of results that AWS returned at one time.

Type: Integer

TotalSize (p. 12)

The total number of search results.

Type: Integer

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).

BillExpirationException

The requested report expired. Update the date interval and try again.

HTTP Status Code: 400

DataUnavailableException

The requested data is unavailable.

HTTP Status Code: 400

InvalidNextTokenException

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400
**LimitExceededException**

You made too many calls in a short period of time. Try again later.

HTTP Status Code: 400

**RequestChangedException**

Your request parameters changed between pages. Try again with the old parameters or without a pagination token.

HTTP Status Code: 400

**Example**

The following is a sample request and response of the `GetDimensionValues` operation that allows you to search for all the member accounts in an organization in AWS Organizations that have “Elastic” in their name:

**Sample Request**

```plaintext
POST / HTTP/1.1
Host: api.ce.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSCostExplorerService.GetDimensionValues
{
    "TimePeriod": {
        "Start": "2017-01-01",
        "End": "2017-05-18"
    },
    "SearchString": "Elastic",
    "Dimension": "Service"
}
```

**Sample Response**

```plaintext
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
//Attributes are optional metadata that are returned depending on the dimension that you select.
{
    "DimensionValues": [
        {
            "Attributes": {},
            "Value": "Amazon ElastiCache"
        },
        {
            "Attributes": {},
            "Value": "EC2 - Other"
        }
    ]
}
```
See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetReservationCoverage
Service: AWS Cost Explorer Service

Retrieves the reservation coverage for your account. This allows you to see how much of your Amazon Elastic Compute Cloud, Amazon ElastiCache, Amazon Relational Database Service, or Amazon Redshift usage is covered by a reservation. An organization's master account can see the coverage of the associated member accounts. For any time period, you can filter data about reservation usage by the following dimensions:

- AZ
- CACHE_ENGINE
- DATABASE_ENGINE
- DEPLOYMENT_OPTION
- INSTANCE_TYPE
- LINKED_ACCOUNT
- OPERATING_SYSTEM
- PLATFORM
- REGION
- SERVICE
- TAG
- TENANCY

To determine valid values for a dimension, use the GetDimensionValues operation.

Request Syntax

```json
{
  "Filter": {
    "And": [
      "Expression"
    ],
    "Dimensions": {
      "Key": "string",
      "Values": [ "string" ]
    },
    "Not": "Expression",
    "Or": [
      "Expression"
    ],
    "Tags": {
      "Key": "string",
      "Values": [ "string" ]
    }
  },
  "Granularity": "string",
  "GroupBy": [
    {
      "Key": "string",
      "Type": "string"
    }
  ],
  "NextPageToken": "string",
  "TimePeriod": {
    "End": "string",
    "Start": "string"
  }
}
```
Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

Filter (p. 16)

Filters utilization data by dimensions. You can filter by the following dimensions:

- AZ
- CACHE_ENGINE
- DATABASE_ENGINE
- DEPLOYMENT_OPTION
- INSTANCE_TYPE
- LINKED_ACCOUNT
- OPERATING_SYSTEM
- PLATFORM
- REGION
- SERVICE
- TAG
- TENANCY

GetReservationCoverage uses the same Expression object as the other operations, but only AND is supported among each dimension. You can nest only one level deep. If there are multiple values for a dimension, they are OR'd together.

Type: Expression (p. 104) object

Required: No

Granularity (p. 16)

The granularity of the AWS cost data for the reservation. Valid values are MONTHLY and DAILY.

If GroupBy is set, Granularity can't be set. If Granularity isn't set, the response object doesn't include Granularity, either MONTHLY or DAILY.

Type: String

Valid Values: DAILY | MONTHLY

Required: No

GroupBy (p. 16)

You can group the data by the following attributes:

- AZ
- CACHE_ENGINE
- DATABASE_ENGINE
- DEPLOYMENT_OPTION
- INSTANCE_TYPE
• LINKED_ACCOUNT
• OPERATING_SYSTEM
• PLATFORM
• REGION
• TAG
• TENANCY

Type: Array of GroupDefinition (p. 107) objects

Required: No

NextPageToken (p. 16)

The token to retrieve the next set of results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

Required: No

TimePeriod (p. 16)

The start and end dates of the period for which you want to retrieve data about reservation coverage. You can retrieve data for a maximum of 13 months: the last 12 months and the current month. The start date is inclusive, but the end date is exclusive. For example, if start is 2017-01-01 and end is 2017-05-01, then the cost and usage data is retrieved from 2017-01-01 up to and including 2017-04-30 but not including 2017-05-01.

Type: DateInterval (p. 98) object

Required: Yes

Response Syntax

```json
{
  "CoveragesByTime": [
    {
      "Groups": [
        {
          "Attributes": {
            "string": "string"
          },
          "Coverage": {
            "CoverageHours": {
              "CoverageHoursPercentage": "string",
              "OnDemandHours": "string",
              "ReservedHours": "string",
              "TotalRunningHours": "string"
            }
          }
        }
      ],
      "TimePeriod": {
        "End": "string",
        "Start": "string"
      },
      "Total": {
        "CoverageHours": {
          "CoverageHoursPercentage": "string",
          "OnDemandHours": "string",
          "ReservedHours": "string"
        }
      }
    }
  ]
}```
"TotalRunningHours": "string"
},
}
],
"NextPageToken": "string",
"Total": {
"CoverageHours": {
"CoverageHoursPercentage": "string",
"OnDemandHours": "string",
"ReservedHours": "string",
"TotalRunningHours": "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.

CoveragesByTime (p. 18)

The amount of time that your reservations covered.

Type: Array of CoverageByTime (p. 96) objects

NextPageToken (p. 18)

The token for the next set of retrievable results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

Total (p. 18)

The total amount of instance usage that is covered by a reservation.

Type: Coverage (p. 95) object

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).

DataUnavailableException

The requested data is unavailable.

HTTP Status Code: 400

InvalidNextTokenException

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400

LimitExceededException

You made too many calls in a short period of time. Try again later.

HTTP Status Code: 400
Example

The following example request for the GetReservationCoverage operation retrieves reservation coverage for all t2.nano instance types from 2017-07-01 to 2017-10-01:

Sample Request

```
POST / HTTP/1.1
Host: api.ce.<region>.<domain>
x-amz-date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSCostExplorerService.GetReservationCoverage
{
    "TimePeriod": {
        "Start": "2017-07-01",
        "End": "2017-10-01"
    },
    "Filter": {
        "And": [
            {"Dimensions": {
                "Key": "INSTANCE_TYPE",
                "Values": ["t2.nano"
            ]},
            {"Dimensions": {
                "Key": "REGION",
                "Values": ["us-east-1"
            ]}
        ]
    },
    "GroupBy": {
        "Type": "Dimension",
        "Key": "REGION"
    }
}
```

Sample Response

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
    "CoveragesByTime": [
        "Groups": [
            {"Attributes": {
                "region": "us-east-1"
            },
            "Coverage": {
                "CoverageHours": 20
            }
        ]
    ]
}
```
See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetReservationPurchaseRecommendation

Service: AWS Cost Explorer Service

Gets recommendations for which reservations to purchase. These recommendations could help you reduce your costs. Reservations provide a discounted hourly rate (up to 75%) compared to On-Demand pricing.

AWS generates your recommendations by identifying your On-Demand usage during a specific time period and collecting your usage into categories that are eligible for a reservation. After AWS has these categories, it simulates every combination of reservations in each category of usage to identify the best number of each type of RI to purchase to maximize your estimated savings.

For example, AWS automatically aggregates your EC2 Linux, shared tenancy, and c4 family usage in the US West (Oregon) Region and recommends that you buy size-flexible regional reservations to apply to the c4 family usage. AWS recommends the smallest size instance in an instance family. This makes it easier to purchase a size-flexible RI. AWS also shows the equal number of normalized units so that you can purchase any instance size that you want. For this example, your RI recommendation would be for c4.large, because that is the smallest size instance in the c4 instance family.

Request Syntax

```
{
  "AccountId": "string",
  "AccountScope": "string",
  "LookbackPeriodInDays": "string",
  "NextPageToken": "string",
  "PageSize": number,
  "PaymentOption": "string",
  "Service": "string",
  "ServiceSpecification": {
    "EC2Specification": {
      "OfferingClass": "string"
    }
  },
  "TermInYears": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 22)**

The account ID that is associated with the recommendation.

Type: String

Required: No

**AccountScope (p. 22)**

The account scope that you want recommendations for. The only valid value is payer. This means that AWS includes the master account and any member accounts when it calculates its recommendations.

Type: String
Valid Values: PAYER
Required: No

LookbackPeriodInDays (p. 22)
The number of previous days that you want AWS to consider when it calculates your recommendations.
Type: String
Valid Values: SEVEN_DAYS | THIRTY_DAYS | SIXTY_DAYS
Required: No

NextPageToken (p. 22)
The pagination token that indicates the next set of results that you want to retrieve.
Type: String
Required: No

PageSize (p. 22)
The number of recommendations that you want returned in a single response object.
Type: Integer
Valid Range: Minimum value of 0.
Required: No

PaymentOption (p. 22)
The reservation purchase option that you want recommendations for.
Type: String
Valid Values: NO_UPFRONT | PARTIAL_UPFRONT | ALL_UPFRONT
Required: No

Service (p. 22)
The specific service that you want recommendations for.
Type: String
Required: Yes

ServiceSpecification (p. 22)
The hardware specifications for the service instances that you want recommendations for, such as standard or convertible EC2 instances.
Type: ServiceSpecification (p. 123) object
Required: No

TermInYears (p. 22)
The reservation term that you want recommendations for.
AWS Cost Explorer Service Cost Management APIs
GetReservationPurchaseRecommendation

Type: String

Valid Values: ONE_YEAR | THREE_YEARS

Required: No

Response Syntax

```json
{
  "Metadata": {
    "GenerationTimestamp": "string",
    "RecommendationId": "string"
  },
  "NextPageToken": "string",
  "Recommendations": [
    {
      "AccountScope": "string",
      "LookbackPeriodInDays": "string",
      "PaymentOption": "string",
      "RecommendationDetails": [
        {
          "AverageNormalizedUnitsUsedPerHour": "string",
          "AverageNumberOfInstancesUsedPerHour": "string",
          "AverageUtilization": "string",
          "CurrencyCode": "string",
          "EstimatedBreakEvenInMonths": "string",
          "EstimatedMonthlyOnDemandCost": "string",
          "EstimatedMonthlySavingsAmount": "string",
          "EstimatedMonthlySavingsPercentage": "string",
          "EstimatedReservationCostForLookbackPeriod": "string",
          "InstanceDetails": {
            "EC2InstanceDetails": {
              "AvailabilityZone": "string",
              "CurrentGeneration": boolean,
              "Family": "string",
              "InstanceType": "string",
              "Platform": "string",
              "Region": "string",
              "SizeFlexEligible": boolean,
              "Tenancy": "string"
            },
            "RDSInstanceDetails": {
              "CurrentGeneration": boolean,
              "DatabaseEngine": "string",
              "DeploymentOption": "string",
              "Family": "string",
              "InstanceType": "string",
              "LicenseModel": "string",
              "Region": "string",
              "SizeFlexEligible": boolean
            }
          },
          "MaximumNormalizedUnitsUsedPerHour": "string",
          "MaximumNumberOfInstancesUsedPerHour": "string",
          "MinimumNormalizedUnitsUsedPerHour": "string",
          "MinimumNumberOfInstancesUsedPerHour": "string",
          "RecommendedNormalizedUnitsToPurchase": "string",
          "RecommendedNumberOfInstancesToPurchase": "string",
          "RecurringStandardMonthlyCost": "string",
          "UpfrontCost": "string"
        }
      }
    }
  ],
  "RecommendationSummary": {
```
"CurrencyCode": "string",
"TotalEstimatedMonthlySavingsAmount": "string",
"TotalEstimatedMonthlySavingsPercentage": "string",

"ServiceSpecification": {
"EC2Specification": {
"OfferingClass": "string"
}
},
"TermInYears": "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.

**Metadata (p. 24)**

Information about this specific recommendation call, such as the time stamp for when Cost Explorer generated this recommendation.

Type: ReservationPurchaseRecommendationMetadata (p. 119) object

**NextPageToken (p. 24)**

The pagination token for the next set of retrievable results.

Type: String

**Recommendations (p. 24)**

Recommendations for reservations to purchase.

Type: Array of ReservationPurchaseRecommendation (p. 114) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).

**DataUnavailableException**

The requested data is unavailable.

HTTP Status Code: 400

**InvalidNextTokenException**

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400

**LimitExceedededException**

You made too many calls in a short period of time. Try again later.

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
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetReservationUtilization
Service: AWS Cost Explorer Service

Retrieves the reservation utilization for your account. Master accounts in an organization have access to member accounts. You can filter data by dimensions in a time period. You can use GetDimensionValues to determine the possible dimension values. Currently, you can group only by SUBSCRIPTION_ID.

Request Syntax

```json
{
  "Filter": {
    "And": [
      "Expression"
    ],
    "Dimensions": {
      "Key": "string",
      "Values": [ "string" ]
    },
    "Not": "Expression",
    "Or": [
      "Expression"
    ],
    "Tags": {
      "Key": "string",
      "Values": [ "string" ]
    }
  },
  "Granularity": "string",
  "GroupBy": [
    {
      "Key": "string",
      "Type": "string"
    }
  ],
  "NextPageToken": "string",
  "TimePeriod": {
    "End": "string",
    "Start": "string"
  }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

Filter (p. 27)

Filters utilization data by dimensions. You can filter by the following dimensions:

- AZ
- CACHE_ENGINE
- DATABASE_ENGINE
- DEPLOYMENT_OPTION
- INSTANCE_TYPE
- LINKED_ACCOUNT
GetReservationUtilization uses the same Expression object as the other operations, but only AND is supported among each dimension, and nesting is supported up to only one level deep. If there are multiple values for a dimension, they are OR'd together.

Type: Expression (p. 104) object

Required: No

Granularity (p. 27)

If GroupBy is set, Granularity can't be set. If Granularity isn't set, the response object doesn't include Granularity, either MONTHLY or DAILY. If both GroupBy and Granularity aren't set, GetReservationUtilization defaults to DAILY.

Type: String

Valid Values: DAILY | MONTHLY

Required: No

GroupBy (p. 27)

Groups only by SUBSCRIPTION_ID. Metadata is included.

Type: Array of GroupDefinition (p. 107) objects

Required: No

NextPageToken (p. 27)

The token to retrieve the next set of results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

Required: No

TimePeriod (p. 27)

Sets the start and end dates for retrieving Reserved Instance (RI) utilization. The start date is inclusive, but the end date is exclusive. For example, if start is 2017-01-01 and end is 2017-05-01, then the cost and usage data is retrieved from 2017-01-01 up to and including 2017-04-30 but not including 2017-05-01.

Type: DateInterval (p. 98) object

Required: Yes

Response Syntax

```json
{
    "NextPageToken": "string",
    "Total": {
        "PurchasedHours": "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.

NextPageToken (p. 28)

The token for the next set of retrievable results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

Total (p. 28)

The total amount of time that you utilized your RIs.

Type: ReservationAggregates (p. 112) object

UtilizationsByTime (p. 28)

The amount of time that you utilized your RIs.

Type: Array of UtilizationByTime (p. 125) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).
**DataUnavailableException**

The requested data is unavailable.

HTTP Status Code: 400

**InvalidNextTokenException**

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400

**LimitExceededException**

You made too many calls in a short period of time. Try again later.

HTTP Status Code: 400

**Example**

The following is a sample request and response of the *GetReservationUtilization* operation that allows you to retrieve your RI utilization for all `t2.nano` instance types from 2017-01-01 to 2017-05-01:

**Sample Request**

```
POST / HTTP/1.1
Host: api.ce.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid;Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSCostExplorerService.GetReservationUtilization
{
  "TimePeriod": {
    "Start": "2017-07-01",
    "End": "2017-10-01"
  },
  "Filter": {
    "Dimensions": {
      "Key": "INSTANCE_TYPE",
      "Values": ["t2.nano"
    ]
  }
},
"GroupBy": [
  {"Type": "Dimension",
    "Key": "SUBSCRIPTION_ID"
  }
]
```

**Sample Response**

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
```
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>

"UtilizationsByTime": [{
  "Groups": [{
    "Attributes": {
      "AccountId": "0123456789",
      "AccountName": null,
      "AvailabilityZone": "",
      "CancellationDateTime": "2019-09-28T15:22:31.000Z",
      "EndDateTime": "2019-09-28T15:22:31.000Z",
      "InstanceType": "t2.nano",
      "LeaseId": null,
      "NumberOfInstances": "1",
      "OfferingType": "convertible",
      "Platform": "Linux/UNIX",
      "Region": "us-east-1",
      "Scope": "Region",
      "StartDateTime": "2016-09-28T15:22:32.000Z",
      "SubscriptionId": "359809062",
      "SubscriptionStatus": "Active",
      "SubscriptionType": "All Upfront",
      "Tenancy": "Shared"
    },
    "Key": "SUBSCRIPTION_ID",
    "Utilization": {
      "PurchasedHours": 2208,
      "TotalActualHours": 2208,
      "UnusedHours": 0,
      "UtilizationPercentage": 100
    },
    "Value": "359809062"
  },
  {
    "Attributes": {
      "AccountId": "0123456789",
      "AccountName": null,
      "AvailabilityZone": "us-east-1d",
      "CancellationDateTime": "2017-09-28T15:22:31.000Z",
      "EndDateTime": "2017-09-28T15:22:31.000Z",
      "InstanceType": "t2.nano",
      "LeaseId": null,
      "NumberOfInstances": "1",
      "OfferingType": "Standard",
      "Platform": "Linux/UNIX",
      "Region": "us-east-1",
      "Scope": "Availability Zone",
      "StartDateTime": "2016-09-28T15:22:32.000Z",
      "SubscriptionId": "359809070",
      "SubscriptionStatus": "Active",
      "SubscriptionType": "All Upfront",
      "Tenancy": "Shared"
    },
    "Key": "SUBSCRIPTION_ID",
    "Utilization": {
      "PurchasedHours": 2151,
      "TotalActualHours": 2151,
      "UnusedHours": 0,
      "UtilizationPercentage": 100
    },
    "Value": "359809070"
  },
  {
    "Attributes": {
      "AccountId": "0123456789",
      "AccountName": null,
      "AvailabilityZone": "us-east-1",
      "CancellationDateTime": "2017-09-28T15:22:31.000Z",
      "EndDateTime": "2017-09-28T15:22:31.000Z",
      "InstanceType": "t2.nano",
      "LeaseId": null,
      "NumberOfInstances": "1",
      "OfferingType": "Standard",
      "Platform": "Linux/UNIX",
      "Region": "us-east-1",
      "Scope": "Availability Zone",
      "StartDateTime": "2016-09-28T15:22:32.000Z",
      "SubscriptionId": "359809070",
      "SubscriptionStatus": "Active",
      "SubscriptionType": "All Upfront",
      "Tenancy": "Shared"
    },
    "Key": "SUBSCRIPTION_ID",
    "Utilization": {
      "PurchasedHours": 2151,
      "TotalActualHours": 2151,
      "UnusedHours": 0,
      "UtilizationPercentage": 100
    },
    "Value": "359809070"
  }
}
"AccountName": null,
"AvailabilityZone": "us-west-2a",
"CancellationDateTime": "2017-09-20T04:06:02.000Z",
"EndDateTime": "2017-09-20T04:06:02.000Z",
"InstanceType": "t2.nano",
"LeaseId": null,
"NumberOfInstances": "1",
"OfferingType": "Standard",
"Platform": "Linux/UNIX",
"Region": "us-west-2",
"Scope": "Availability Zone",
"StartDateDateTime": "2016-09-20T04:06:03.000Z",
"SubscriptionId": "353571154",
"SubscriptionStatus": "Active",
"SubscriptionType": "Partial Upfront",
"Tenancy": "Shared"
},
"Key": "SUBSCRIPTION_ID",
"Utilization": {
  "PurchasedHours": 1948,
  "TotalActualHours": 0,
  "UnusedHours": 1948,
  "UtilizationPercentage": 0
},
"Value": "353571154"
},
"TimePeriod": {
  "End": "2017-10-01",
  "Start": "2017-07-01"
},
"Total": {
  "PurchasedHours": 6307,
  "TotalActualHours": 4359,
  "UnusedHours": 1948,
  "UtilizationPercentage": 69.11368320913270968764864436340574
}]
}

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetTags

Service: AWS Cost Explorer Service

Queries for available tag keys and tag values for a specified period. You can search the tag values for an arbitrary string.

Request Syntax

```
{
   "NextPageToken": "string",
   "SearchString": "string",
   "TagKey": "string",
   "TimePeriod": {
      "End": "string",
      "Start": "string"
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

NextPageToken (p. 33)

The token to retrieve the next set of results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

Required: No

SearchString (p. 33)

The value that you want to search for.

Type: String

Required: No

TagKey (p. 33)

The key of the tag that you want to return values for.

Type: String

Required: No

TimePeriod (p. 33)

The start and end dates for retrieving the dimension values. The start date is inclusive, but the end date is exclusive. For example, if start is 2017-01-01 and end is 2017-05-01, then the cost and usage data is retrieved from 2017-01-01 up to and including 2017-04-30 but not including 2017-05-01.

Type: DateInterval (p. 98) object

Required: Yes
Response Syntax

```json
{
    "NextPageToken": "string",
    "ReturnSize": number,
    "Tags": [ "string" ],
    "TotalSize": number
}
```

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.

**NextPageToken (p. 34)**

The token for the next set of retrievable results. AWS provides the token when the response from a previous call has more results than the maximum page size.

Type: String

**ReturnSize (p. 34)**

The number of query results that AWS returns at a time.

Type: Integer

**Tags (p. 34)**

The tags that match your request.

Type: Array of strings

**TotalSize (p. 34)**

The total number of query results.

Type: Integer

Errors

For information about the errors that are common to all actions, see [Common Errors (p. 142)](#).

**BillExpirationException**

The requested report expired. Update the date interval and try again.

HTTP Status Code: 400

**DataUnavailableException**

The requested data is unavailable.

HTTP Status Code: 400

**InvalidNextTokenException**

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400
LimitExceededException

You made too many calls in a short period of time. Try again later.

HTTP Status Code: 400

RequestChangedException

Your request parameters changed between pages. Try again with the old parameters or without a pagination token.

HTTP Status Code: 400

Example

The following example shows how to retrieve the list of tag keys using the GetTags operation:

Sample Request

```plaintext
POST / HTTP/1.1
Host: api.ce.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
   SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestId,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: CostExplorer.GetTags
{
   "TimePeriod": {
      "Start": "2017-01-01",
      "End": "2017-05-18"
   },
   "TagKey": "Project",
   "SearchString": "secretProject"
}
```

Sample Response

```plaintext
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
   "ReturnSize": 2,
   "Tags": [
      "secretProject1",
      "secretProject2"
   ],
   "TotalSize": 2
}
```

See Also

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

- AWS Command Line Interface
AWS Cost Explorer Service Cost Management APIs
AWS Budgets

• AWS SDK for .NET
• AWS SDK for C++
• AWS SDK for Go
• AWS SDK for Java
• AWS SDK for JavaScript
• AWS SDK for PHP V3
• AWS SDK for Python
• AWS SDK for Ruby V2

AWS Budgets

The following actions are supported by AWS Budgets:

• CreateBudget (p. 37)
• CreateNotification (p. 41)
• CreateSubscriber (p. 44)
• DeleteBudget (p. 47)
• DeleteNotification (p. 49)
• DeleteSubscriber (p. 52)
• DescribeBudget (p. 55)
• DescribeBudgets (p. 59)
• DescribeNotificationsForBudget (p. 63)
• DescribeSubscribersForNotification (p. 67)
• UpdateBudget (p. 71)
• UpdateNotification (p. 75)
• UpdateSubscriber (p. 78)
CreateBudget

Service: AWS Budgets

Creates a budget and, if included, notifications and subscribers.

Request Syntax

```
{
   "AccountId": "string",
   "Budget": {
      "BudgetLimit": {
         "Amount": "string",
         "Unit": "string"
      },
      "BudgetName": "string",
      "BudgetType": "string",
      "CalculatedSpend": {
         "ActualSpend": {
            "Amount": "string",
            "Unit": "string"
         },
         "ForecastedSpend": {
            "Amount": "string",
            "Unit": "string"
         }
      },
      "CostFilters": {
         "string": [ "string" ]
      },
      "CostTypes": {
         "IncludeCredit": boolean,
         "IncludeDiscount": boolean,
         "IncludeOtherSubscription": boolean,
         "IncludeRecurring": boolean,
         "IncludeRefund": boolean,
         "IncludeSubscription": boolean,
         "IncludeSupport": boolean,
         "IncludeTax": boolean,
         "IncludeUpfront": boolean,
         "UseAmortized": boolean,
         "UseBlended": boolean
      },
      "TimePeriod": {
         "End": number,
         "Start": number
      },
      "TimeUnit": "string"
   },
   "NotificationsWithSubscribers": [
      {
         "Notification": {
            "ComparisonOperator": "string",
            "NotificationType": "string",
            "Threshold": number,
            "ThresholdType": "string"
         },
         "Subscribers": [
            {
               "Address": "string",
               "SubscriptionType": "string"
            }
         ]
      }
   ]
}
```
Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 37)**

The accountId that is associated with the budget.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

**Budget (p. 37)**

The budget object that you want to create.

Type: Budget (p. 126) object

Required: Yes

**NotificationsWithSubscribers (p. 37)**

A notification that you want to associate with a budget. A budget can have up to five notifications, and each notification can have one SNS subscriber and up to 10 email subscribers. If you include notifications and subscribers in your CreateBudget call, AWS creates the notifications and subscribers for you.

Type: Array of NotificationWithSubscribers (p. 133) objects

Array Members: Maximum number of 5 items.

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 Errors (p. 142).

**CreationLimitExceededException**

You've exceeded the notification or subscriber limit.

HTTP Status Code: 400

**DuplicateRecordException**

The budget name already exists. Budget names must be unique within an account.

HTTP Status Code: 400
InternalErrorException

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

InvalidParameterException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

Example

The following is a sample request of the CreateBudget operation:

Sample Request

```json
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
  requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.CreateBudgets
{
  "AccountId": "111122223333",
  "Budget": {
    "BudgetLimit": {
      "Amount": "100",
      "Unit": "USD"
    },
    "BudgetName": "Example Budget",
    "BudgetType": "COST",
    "CostFilters": {
      "AZ": [ "us-east-1" ]
    },
    "CostTypes": {
      "IncludeCredit": true,
      "IncludeDiscount": true,
      "IncludeOtherSubscription": true,
      "IncludeRecurring": true,
      "IncludeRefund": true,
      "IncludeSubscription": true,
      "IncludeSupport": true,
      "IncludeTax": true,
      "IncludeUpfront": true,
      "UseBlended": false
    },
    "TimePeriod": {
      "Start": 1477353600,
      "End": 1477958399
    },
    "TimeUnit": "MONTHLY"
  },
  "NotificationsWithSubscribers": [
    {
      "Notification": {
```
"ComparisonOperator": "GREATER_THAN",
"NotificationType": "ACTUAL",
"Threshold": 80,
"ThresholdType": "PERCENTAGE"
},
"Subscribers": [
{
  "Address": "example@example.com",
  "SubscriptionType": "EMAIL"
}
]
]}

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
CreateNotification
Service: AWS Budgets

Creates a notification. You must create the budget before you create the associated notification.

Request Syntax

```
{
    "AccountId": "string",
    "BudgetName": "string",
    "Notification": {
        "ComparisonOperator": "string",
        "NotificationType": "string",
        "Threshold": number,
        "ThresholdType": "string"
    },
    "Subscribers": [
        {
            "Address": "string",
            "SubscriptionType": "string"
        }
    ]
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 41)**

The accountId that is associated with the budget that you want to create a notification for.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

**BudgetName (p. 41)**

The name of the budget that you want AWS to notify you about. Budget names must be unique within an account.

Type: String

Length Constraints: Maximum length of 100.

Pattern: [^:\\]+

Required: Yes

**Notification (p. 41)**

The notification that you want to create.

Type: Notification (p. 131) object

Required: Yes
Subscribers (p. 41)

A list of subscribers that you want to associate with the notification. Each notification can have one SNS subscriber and up to 10 email subscribers.

Type: Array of Subscriber (p. 135) objects

Array Members: Minimum number of 1 item. Maximum number of 11 items.

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 Errors (p. 142).

CreationLimitExceededException

You've exceeded the notification or subscriber limit.

HTTP Status Code: 400

DuplicateRecordException

The budget name already exists. Budget names must be unique within an account.

HTTP Status Code: 400

InternalErrorException

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

InvalidParameterException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

NotFoundException

We can't locate the resource that you specified.

HTTP Status Code: 400

Example

The following is a sample request of the CreateNotification operation:

Sample Request

```
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
    requestid,Signature=<Signature>
```
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.CreateNotification
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget",
    "Notification": {
        "ComparisonOperator": "GREATER_THAN",
        "NotificationType": "ACTUAL",
        "Threshold": 80,
        "ThresholdType": "PERCENTAGE"
    },
    "Subscribers": [
        {
            "Address": "example@example.com",
            "SubscriptionType": "EMAIL"
        }
    ]
}

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
CreateSubscriber
Service: AWS Budgets

Creates a subscriber. You must create the associated budget and notification before you create the subscriber.

Request Syntax

```json
{
    "AccountId": "string",
    "BudgetName": "string",
    "Notification": {
        "ComparisonOperator": "string",
        "NotificationType": "string",
        "Threshold": number,
        "ThresholdType": "string"
    },
    "Subscriber": {
        "Address": "string",
        "SubscriptionType": "string"
    }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

AccountId (p. 44)

The accountId that is associated with the budget that you want to create a subscriber for.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

BudgetName (p. 44)

The name of the budget that you want to subscribe to. Budget names must be unique within an account.

Type: String

Length Constraints: Maximum length of 100.

Pattern: [^:\\]+

Required: Yes

Notification (p. 44)

The notification that you want to create a subscriber for.

Type: Notification (p. 131) object

Required: Yes
### Subscriber (p. 44)

The subscriber that you want to associate with a budget notification.

Type: Subscriber (p. 135) object

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 Errors (p. 142).

**CreationLimitExceededException**

You've exceeded the notification or subscriber limit.

HTTP Status Code: 400

**DuplicateRecordException**

The budget name already exists. Budget names must be unique within an account.

HTTP Status Code: 400

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidParameterException**

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

**NotFoundException**

We can't locate the resource that you specified.

HTTP Status Code: 400

### Example

The following is a sample request of the `CreateSubscriber` operation:

#### Sample Request

```plaintext
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
   SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
```
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.CreateSubscriber
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget",
    "Notification": {
        "ComparisonOperator": "GREATER_THAN",
        "NotificationType": "ACTUAL",
        "Threshold": 80,
        "ThresholdType": "PERCENTAGE"
    },
    "Subscribers": [{
        "Address": "example@example.com",
        "SubscriptionType": "EMAIL"
    }]
}

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
DeleteBudget
Service: AWS Budgets

Deletes a budget. You can delete your budget at any time.

**Important**
Deleting a budget also deletes the notifications and subscribers that are associated with that budget.

**Request Syntax**

```json
{
   "AccountId": "string",
   "BudgetName": "string"
}
```

**Request Parameters**

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId** (p. 47)

The accountId that is associated with the budget that you want to delete.

Type: String
Length Constraints: Fixed length of 12.
Required: Yes

**BudgetName** (p. 47)

The name of the budget that you want to delete.

Type: String
Length Constraints: Maximum length of 100.
Pattern: [^:\\]+
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 Errors (p. 142).

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400
InvalidParameterException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

NotFoundException

We can't locate the resource that you specified.

HTTP Status Code: 400

Example

The following is a sample request of the DeleteBudget operation:

Sample Request

```
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.DeleteBudget
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget"
}
```

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
DeleteNotification

Service: AWS Budgets

Deletes a notification.

**Important**
Deleting a notification also deletes the subscribers that are associated with the notification.

**Request Syntax**

```json
{
    "AccountId": "string",
    "BudgetName": "string",
    "Notification": {
        "ComparisonOperator": "string",
        "NotificationType": "string",
        "Threshold": number,
        "ThresholdType": "string"
    }
}
```

**Request Parameters**

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 49)**

The `accountId` that is associated with the budget whose notification you want to delete.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

**BudgetName (p. 49)**

The name of the budget whose notification you want to delete.

Type: String

Length Constraints: Maximum length of 100.

Pattern: `[^:\\]+`

Required: Yes

**Notification (p. 49)**

The notification that you want to delete.

Type: `Notification (p. 131)` object

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 Errors (p. 142).

InternalErrorException

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

InvalidParameterException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

NotFoundException

We can’t locate the resource that you specified.

HTTP Status Code: 400

Example

The following is a sample request of the DeleteNotification operation:

Sample Request

```bash
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.DeleteNotification
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget",
    "Notification": {
        "ComparisonOperator": "GREATER_THAN",
        "NotificationType": "ACTUAL",
        "Threshold": 80,
        "ThresholdType": "PERCENTAGE"
    }
}
```

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
• AWS SDK for Java
• AWS SDK for JavaScript
• AWS SDK for PHP V3
• AWS SDK for Python
• AWS SDK for Ruby V2
DeleteSubscriber
Service: AWS Budgets

Deletes a subscriber.

**Important**
Deleting the last subscriber to a notification also deletes the notification.

**Request Syntax**

```json
{
   "AccountId": "string",
   "BudgetName": "string",
   "Notification": {
      "ComparisonOperator": "string",
      "NotificationType": "string",
      "Threshold": number,
      "ThresholdType": "string"
   },
   "Subscriber": {
      "Address": "string",
      "SubscriptionType": "string"
   }
}
```

**Request Parameters**

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 52)**

The `accountId` that is associated with the budget whose subscriber you want to delete.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

**BudgetName (p. 52)**

The name of the budget whose subscriber you want to delete.

Type: String

Length Constraints: Maximum length of 100.

Pattern: `[^:\\]+`

Required: Yes

**Notification (p. 52)**

The notification whose subscriber you want to delete.

Type: `Notification (p. 131)` object

Required: Yes
**Subscriber (p. 52)**

The subscriber that you want to delete.

Type: Subscriber (p. 135) object

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 Errors (p. 142).

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidParameterException**

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

**NotFoundException**

We can't locate the resource that you specified.

HTTP Status Code: 400

**Example**

The following is a sample request of the `DeleteSubscriber` operation:

**Sample Request**

```plaintext
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
    requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.DeleteSubscriber
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget",
    "Notification": {
        "ComparisonOperator": "GREATER_THAN",
        "NotificationType": "ACTUAL",
        "Threshold": 80,
        "ThresholdType": "PERCENTAGE"
    }
}
```
},
"Subscribers": [
{
    "Address": "example@example.com",
    "SubscriptionType": "EMAIL"
}
]
}

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
DescribeBudget

Service: AWS Budgets

Describes a budget.

Request Syntax

```json
{
    "AccountId": "string",
    "BudgetName": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 55)**

The `accountId` that is associated with the budget that you want a description of.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

**BudgetName (p. 55)**

The name of the budget that you want a description of.

Type: String

Length Constraints: Maximum length of 100.

Pattern: `[^:\\]+`

Required: Yes

Response Syntax

```json
{
    "Budget": {
        "BudgetLimit": {
            "Amount": "string",
            "Unit": "string"
        },
        "BudgetName": "string",
        "BudgetType": "string",
        "CalculatedSpend": {
            "ActualSpend": {
                "Amount": "string",
                "Unit": "string"
            },
            "ForecastedSpend": {
```

55
"Amount": "string",
"Unit": "string"
}
},
"CostFilters": {
"string": [ "string" ]
},
"CostTypes": {
"IncludeCredit": boolean,
"IncludeDiscount": boolean,
"IncludeOtherSubscription": boolean,
"IncludeRecurring": boolean,
"IncludeRefund": boolean,
"IncludeSubscription": boolean,
"IncludeSupport": boolean,
"IncludeTax": boolean,
"IncludeUpfront": boolean,
"UseAmortized": boolean,
"UseBlended": boolean
},
"TimePeriod": {
"End": number,
"Start": number
},
"TimeUnit": "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.

Budget (p. 55)

The description of the budget.

Type: Budget (p. 126) object

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).

InternalErrorException

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

InvalidParameterException

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

NotFoundException

We can't locate the resource that you specified.

HTTP Status Code: 400
Example

The following is a sample request and response of the DescribeBudget operation:

Sample Request

```plaintext
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.DescribeBudget
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget"
}
```

Sample Response

```plaintext
{
    "Budget": {
        "BudgetLimit": {
            "Amount": "100",
            "Unit": "USD"
        },
        "BudgetName": "Example Budget",
        "BudgetType": "COST",
        "CalculatedSpend": {
            "ActualSpend": {
                "Amount": "50",
                "Unit": "USD"
            },
            "ForecastedSpend": {
                "Amount": "100",
                "Unit": "USD"
            }
        },
        "CostFilters": {
            "AZ": [ "us-east-1" ]
        },
        "CostTypes": {
            "IncludeCredit": true,
            "IncludeDiscount": true,
            "IncludeOtherSubscription": true,
            "IncludeRecurring": true,
            "IncludeRefund": true,
            "IncludeSubscription": true,
            "IncludeSupport": true,
            "IncludeTax": true,
            "IncludeUpfront": true,
            "UseBlended": false
        },
        "TimePeriod": {
            "Start": 1477353600,
            "End": 1477958399
        },
        "TimeUnit": "MONTHLY"
    }
}
```
See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
DescribeBudgets

Service: AWS Budgets

Lists the budgets that are associated with an account.

Request Syntax

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

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

Accountid (p. 59)

The accountId that is associated with the budgets that you want descriptions of.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

MaxResults (p. 59)

Optional integer. Specifies the maximum number of results to return in a response.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

NextToken (p. 59)

The pagination token that you include in your request to indicate the next set of results that you want to retrieve.

Type: String

Required: No

Response Syntax

```
{
   "Budgets": [
   {
      "BudgetLimit": {
         "Amount": "string",
         "Unit": "string"
      },
      "BudgetName": "string",
      "BudgetType": "string"
   }
   ]
}
```
"CalculatedSpend": { 
  "ActualSpend": { 
    "Amount": "string",
    "Unit": "string"
  },
  "ForecastedSpend": { 
    "Amount": "string",
    "Unit": "string"
  }
},
"CostFilters": { "string": [ "string" ] },
"CostTypes": { "IncludeCredit": boolean, 
  "IncludeDiscount": boolean, 
  "IncludeOtherSubscription": boolean, 
  "IncludeRecurring": boolean, 
  "IncludeRefund": boolean, 
  "IncludeSubscription": boolean, 
  "IncludeSupport": boolean, 
  "IncludeTax": boolean, 
  "IncludeUpfront": boolean, 
  "UseAmortized": boolean, 
  "UseBlended": boolean
},
"TimePeriod": { 
  "End": number, 
  "Start": number
},
"TimeUnit": "string"
],
"NextToken": "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.

**Budgets (p. 59)**

A list of budgets.

Type: Array of Budget (p. 126) objects

**NextToken (p. 59)**

The pagination token in the service response that indicates the next set of results that you can retrieve.

Type: String

**Errors**

For information about the errors that are common to all actions, see Common Errors (p. 142).

**ExpiredNextTokenException**

The pagination token expired.
HTTP Status Code: 400

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidNextTokenException**

The pagination token is invalid.

HTTP Status Code: 400

**InvalidParameterException**

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

**NotFoundException**

We can't locate the resource that you specified.

HTTP Status Code: 400

**Example**

The following is a sample request and response of the DescribeBudgets operation:

**Sample Request**

```
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
    requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.DescribeBudgets
{
    "AccountId": "111122223333",
    "MaxResults": 20
}
```

**Sample Response**

```
{
    "Budgets": [
        {
            "BudgetLimit": {
                "Amount": "100",
                "Unit": "USD"
            },
            "BudgetName": "Example Budget",
            "BudgetType": "COST",
            "CalculatedSpend": {
                "ActualSpend": {
                    "Amount": "50",
                    "Unit": "USD"
                }
            }
        }
    ]
}
```
"Unit": "USD"
},
"ForecastedSpend": {
  "Amount": "100",
  "Unit": "USD"
}
},
"CostFilters": {
  "AZ": [ "us-east-1" ]
},
"CostTypes": {
  "IncludeCredit": true,
  "IncludeDiscount": true,
  "IncludeOtherSubscription": true,
  "IncludeRecurring": true,
  "IncludeRefund": true,
  "IncludeSubscription": true,
  "IncludeSupport": true,
  "IncludeTax": true,
  "IncludeUpfront": true,
  "UseBlended": false
},
"TimePeriod": {
  "Start": 1477353600,
  "End": 1477958399
},
"TimeUnit": "MONTHLY"
},
"NextToken": "exampleTokenString"

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
DescribeNotificationsForBudget

Service: AWS Budgets

Lists the notifications that are associated with a budget.

Request Syntax

```
{
   "AccountId": "string",
   "BudgetName": "string",
   "MaxResults": number,
   "NextToken": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 63)**

The `accountId` that is associated with the budget whose notifications you want descriptions of.

Type: String
Length Constraints: Fixed length of 12.
Required: Yes

**BudgetName (p. 63)**

The name of the budget whose notifications you want descriptions of.

Type: String
Length Constraints: Maximum length of 100.
Pattern: `[^:\\]+`
Required: Yes

**MaxResults (p. 63)**

Optional integer. Specifies the maximum number of results to return in a response.

Type: Integer
Valid Range: Minimum value of 1. Maximum value of 100.
Required: No

**NextToken (p. 63)**

The pagination token that you include in your request to indicate the next set of results that you want to retrieve.

Type: String
Required: No
Response Syntax

```json
{
   "NextToken": "string",
   "Notifications": [
      {
         "ComparisonOperator": "string",
         "NotificationType": "string",
         "Threshold": number,
         "ThresholdType": "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 (p. 64)**

The pagination token in the service response that indicates the next set of results that you can retrieve.

Type: String

**Notifications (p. 64)**

A list of notifications that are associated with a budget.

Type: Array of Notification (p. 131) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).

**ExpiredNextTokenException**

The pagination token expired.

HTTP Status Code: 400

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidNextTokenException**

The pagination token is invalid.

HTTP Status Code: 400

**InvalidParameterException**

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400
**NotFoundException**

We can't locate the resource that you specified.

HTTP Status Code: 400

**Example**

The following is a sample request and response of the `DescribeNotificationsForBudget` operation:

**Sample Request**

```plaintext
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>, SignedHeaders=contenttype;date;host;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.DescribeNotificationsForBudget
{
  "AccountId": "111122223333",
  "BudgetName": "Example Budget",
  "MaxResults": 5
}
```

**Sample Response**

```plaintext
{
  "NextToken": "exampleTokenString",
  "Notifications": [
    {
      "ComparisonOperator": "GREATER_THAN",
      "NotificationType": "ACTUAL",
      "Threshold": 80,
      "ThresholdType": "PERCENTAGE"
    }
  ]
}
```

**See Also**

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
• AWS SDK for Ruby V2
DescribeSubscribersForNotification
Service: AWS Budgets

Lists the subscribers that are associated with a notification.

Request Syntax

```json
{
   "AccountId": "string",
   "BudgetName": "string",
   "MaxResults": number,
   "NextToken": "string",
   "Notification": {
         "ComparisonOperator": "string",
         "NotificationType": "string",
         "Threshold": number,
         "ThresholdType": "string"
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 67)**

The accountId that is associated with the budget whose subscribers you want descriptions of.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

**BudgetName (p. 67)**

The name of the budget whose subscribers you want descriptions of.

Type: String

Length Constraints: Maximum length of 100.

Pattern: [^:\\]+

Required: Yes

**MaxResults (p. 67)**

Optional integer. Specifies the maximum number of results to return in a response.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken (p. 67)**

The pagination token that you include in your request to indicate the next set of results that you want to retrieve.
Type: String
Required: No

**Notification (p. 67)**

The notification whose subscribers you want to list.

Type: [Notification (p. 131)]

Required: Yes

### Response Syntax

```json
{
  "NextToken": "string",
  "Subscribers": [
    {
      "Address": "string",
      "SubscriptionType": "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 (p. 68)**

The pagination token in the service response that indicates the next set of results that you can retrieve.

Type: String

**Subscribers (p. 68)**

A list of subscribers that are associated with a notification.

Type: Array of [Subscriber (p. 135)] objects

Array Members: Minimum number of 1 item. Maximum number of 11 items.

### Errors

For information about the errors that are common to all actions, see [Common Errors (p. 142)].

**ExpiredNextTokenException**

The pagination token expired.

HTTP Status Code: 400

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.
HTTP Status Code: 400
InvalidNextTokenException
The pagination token is invalid.

HTTP Status Code: 400
InvalidParameterException
An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400
NotFoundException
We can't locate the resource that you specified.

HTTP Status Code: 400

Example

The following is a sample request and response of the DescribeSubscribersForNotification operation:

Sample Request

```
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.DescribeSubscribersForNotification
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget",
    "MaxResults": 5,
    "Notification": {
        "ComparisonOperator": "GREATER_THAN",
        "NotificationType": "ACTUAL",
        "Threshold": 80,
        "ThresholdType": "PERCENTAGE"
    }
}
```

Sample Response

```
{
    "NextToken": "string",
    "Subscribers": [
        {
            "Address": "example@example.com",
            "SubscriptionType": "EMAIL"
        }
    ]
}
```
See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
UpdateBudget
Service: AWS Budgets

Updates a budget. You can change every part of a budget except for the budgetName and the calculatedSpend. When you modify a budget, the calculatedSpend drops to zero until AWS has new usage data to use for forecasting.

Request Syntax

```json
{
    "AccountId": "string",
    "NewBudget": {
        "BudgetLimit": {
            "Amount": "string",
            "Unit": "string"
        },
        "BudgetName": "string",
        "BudgetType": "string",
        "CalculatedSpend": {
            "ActualSpend": {
                "Amount": "string",
                "Unit": "string"
            },
            "ForecastedSpend": {
                "Amount": "string",
                "Unit": "string"
            }
        },
        "CostFilters": {
            "string": [ "string" ]
        },
        "CostTypes": {
            "IncludeCredit": boolean,
            "IncludeDiscount": boolean,
            "IncludeOtherSubscription": boolean,
            "IncludeRecurring": boolean,
            "IncludeRefund": boolean,
            "IncludeSubscription": boolean,
            "IncludeSupport": boolean,
            "IncludeTax": boolean,
            "IncludeUpfront": boolean,
            "UseAmortized": boolean,
            "UseBlended": boolean
        },
        "TimePeriod": {
            "End": number,
            "Start": number
        },
        "TimeUnit": "string"
    }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 71)**

The accountId that is associated with the budget that you want to update.
Type: String
Length Constraints: Fixed length of 12.
Required: Yes

**NewBudget (p. 71)**

The budget that you want to update your budget to.
Type: Budget (p. 126) object
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 Errors (p. 142).

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidParameterException**

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

**NotFoundException**

We can’t locate the resource that you specified.

HTTP Status Code: 400

**Example**

The following is a sample request and response of the UpdateBudget operation:

**Sample Request**

```
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
X-Amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.UpdateBudget
{
    "AccountId": "111122223333",
    "NewBudget": {
```
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UpdateBudget

"BudgetLimit": {
  "Amount": "100",
  "Unit": "USD"
},
"BudgetName": "Example Budget",
"BudgetType": "COST",
"CostFilters": {
  "AZ" : [ "us-east-1" ]
},
"CostTypes": {
  "IncludeCredit": true,
  "IncludeDiscount": true,
  "IncludeOtherSubscription": true,
  "IncludeRecurring": true,
  "IncludeRefund": true,
  "IncludeSubscription": true,
  "IncludeSupport": true,
  "IncludeTax": true,
  "IncludeUpfront": true,
  "UseBlended": false
},
"TimePeriod": {
  "Start": 1477353600,
  "End": 1477958399
},
"TimeUnit": "MONTHLY"
}

Sample Response

{
  "AccountId": "111122223333",
  "NewBudget": {
    "BudgetLimit": {
      "Amount": "200",
      "Unit": "USD"
    },
    "BudgetName": "Example Budget",
    "BudgetType": "COST",
    "CalculatedSpend": {
      "ActualSpend": {
        "Amount": "0",
        "Unit": "USD"
      },
      "ForecastedSpend": {
        "Amount": "0",
        "Unit": "USD"
      }
    },
    "CostFilters": {
      "AZ" : [ "ap-south-1" ]
    },
    "CostTypes": {
      "IncludeCredit": true,
      "IncludeDiscount": false,
      "IncludeOtherSubscription": true,
      "IncludeRecurring": true,
      "IncludeRefund": true,
      "IncludeSubscription": true,
      "IncludeSupport": true,
      "IncludeTax": true,
      "IncludeUpfront": true,
      "UseBlended": false
    }
  }
}
AWS Cost Explorer Service Cost Management APIs
UpdateBudget

},
"TimePeriod": {
    "Start": 1477353600,
    "End": 1477958399
},
"TimeUnit": "MONTHLY"
}

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
UpdateNotification

Service: AWS Budgets

Updates a notification.

Request Syntax

```
{
  "AccountId": "string",
  "BudgetName": "string",
  "NewNotification": {
    "ComparisonOperator": "string",
    "NotificationType": "string",
    "Threshold": number,
    "ThresholdType": "string"
  },
  "OldNotification": {
    "ComparisonOperator": "string",
    "NotificationType": "string",
    "Threshold": number,
    "ThresholdType": "string"
  }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 75)**

The accountId that is associated with the budget whose notification you want to update.

- Type: String
- Length Constraints: Fixed length of 12.
- Required: Yes

**BudgetName (p. 75)**

The name of the budget whose notification you want to update.

- Type: String
- Length Constraints: Maximum length of 100.
- Pattern: [^:\\]+  
- Required: Yes

**NewNotification (p. 75)**

The updated notification to be associated with a budget.

- Type: Notification (p. 131) object
- Required: Yes
OldNotification (p. 75)
The previous notification that is associated with a budget.
Type: Notification (p. 131) object
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 Errors (p. 142).

DuplicateRecordException
The budget name already exists. Budget names must be unique within an account.
HTTP Status Code: 400

InternalErrorException
An error on the server occurred during the processing of your request. Try again later.
HTTP Status Code: 400

InvalidParameterException
An error on the client occurred. Typically, the cause is an invalid input value.
HTTP Status Code: 400

NotFoundException
We can’t locate the resource that you specified.
HTTP Status Code: 400

Example
The following is a sample request of the UpdateNotification operation:

Sample Request

```
POST  / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
  SignedHeaders=content-type;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.UpdateNotification

{
  "AccountId": "111122223333",
  "BudgetName": "Example Budget",
```
"NewNotification": {
    "ComparisonOperator": "GREATER_THAN",
    "NotificationType": "ACTUAL",
    "Threshold": 80,
    "ThresholdType": "PERCENTAGE"
  }
},
"OldNotification": {
    "ComparisonOperator": "GREATER_THAN",
    "NotificationType": "ACTUAL",
    "Threshold": 80,
    "ThresholdType": "PERCENTAGE"
  }
}

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
UpdateSubscriber

Service: AWS Budgets

Updates a subscriber.

Request Syntax

```
{
   "AccountId": "string",
   "BudgetName": "string",
   "NewSubscriber": {
      "Address": "string",
      "SubscriptionType": "string"
   },
   "Notification": {
      "ComparisonOperator": "string",
      "NotificationType": "string",
      "Threshold": number,
      "ThresholdType": "string"
   },
   "OldSubscriber": {
      "Address": "string",
      "SubscriptionType": "string"
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AccountId (p. 78)**

The accountId that is associated with the budget whose subscriber you want to update.

Type: String

Length Constraints: Fixed length of 12.

Required: Yes

**BudgetName (p. 78)**

The name of the budget whose subscriber you want to update.

Type: String

Length Constraints: Maximum length of 100.

Pattern: [^:\\]+  

Required: Yes

**NewSubscriber (p. 78)**

The updated subscriber that is associated with a budget notification.

Type: Subscriber (p. 135) object

Required: Yes
**Notification (p. 78)**

The notification whose subscriber you want to update.

Type: Notification (p. 131) object

Required: Yes

**OldSubscriber (p. 78)**

The previous subscriber that is associated with a budget notification.

Type: Subscriber (p. 135) object

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 Errors (p. 142).

**DuplicateRecordException**

The budget name already exists. Budget names must be unique within an account.

HTTP Status Code: 400

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidParameterException**

An error on the client occurred. Typically, the cause is an invalid input value.

HTTP Status Code: 400

**NotFoundException**

We can't locate the resource that you specified.

HTTP Status Code: 400

**Example**

The following is a sample request of the UpdateSubscriber operation:

**Sample Request**

```
POST / HTTP/1.1
Host: awsbudgets.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
   SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
   requestid,Signature=<Signature>
```
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSBudgetServiceGateway.UpdateSubscriber
{
    "AccountId": "111122223333",
    "BudgetName": "Example Budget",
    "Notification": {
        "ComparisonOperator": "GREATER_THAN",
        "NotificationType": "ACTUAL",
        "Threshold": 80,
        "ThresholdType": "PERCENTAGE"
    },
    "OldSubscriber": {
        "Address": "example@example.com",
        "SubscriptionType": "EMAIL"
    },
    "NewSubscriber": {
        "Address": "example2@example.com",
        "SubscriptionType": "EMAIL"
    }
}

See Also
For more information about using this API in one of the language-specific AWS SDKs, see the following:
- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2

AWS Price List Service
The following actions are supported by AWS Price List Service:
- DescribeServices (p. 81)
- GetAttributeValues (p. 85)
- GetProducts (p. 89)
DescribeServices
Service: AWS Price List Service

Returns the metadata for one service or a list of the metadata for all services. Use this without a service code to get the service codes for all services. Use it with a service code, such as AmazonEC2, to get information specific to that service, such as the attribute names available for that service. For example, some of the attribute names available for EC2 are volumeType, maxIopsVolume, operation, locationType, and instanceCapacity10xlarge.

Request Syntax

```
{
    "FormatVersion": "string",
    "MaxResults": number,
    "NextToken": "string",
    "ServiceCode": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**FormatVersion (p. 81)**

The format version that you want the response to be in.

Valid values are: aws_v1

Type: String

Required: No

**MaxResults (p. 81)**

The maximum number of results that you want returned in the response.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken (p. 81)**

The pagination token that indicates the next set of results that you want to retrieve.

Type: String

Required: No

**ServiceCode (p. 81)**

The code for the service whose information you want to retrieve, such as AmazonEC2. You can use the ServiceCode to filter the results in a GetProducts call. To retrieve a list of all services, leave this blank.

Type: String

Required: No
Response Syntax

```json
{
  "FormatVersion": "string",
  "NextToken": "string",
  "Services": [
    {
      "AttributeNames": [ "string" ],
      "ServiceCode": "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.

**FormatVersion (p. 82)**

The format version of the response. For example, `aws_v1`.

Type: String

**NextToken (p. 82)**

The pagination token for the next set of retrievable results.

Type: String

**Services (p. 82)**

The service metadata for the service or services in the response.

Type: Array of `Service (p. 139)` objects

Errors

For information about the errors that are common to all actions, see [Common Errors (p. 142)].

**ExpiredNextTokenException**

The pagination token expired. Try again without a pagination token.

HTTP Status Code: 400

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidNextTokenException**

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400

**InvalidParameterException**

One or more parameters had an invalid value.
HTTP Status Code: 400

NotFoundException

The requested resource can't be found.

HTTP Status Code: 400

Example

The following is a sample request and response of the GetService operation.

Sample Request

```plaintext
POST / HTTP/1.1
Host: api.pricing.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
    SignedHeaders=contenttype;date;host;user-agent;x-amz-date;amzn-target;x-amzn-
    requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amzn-Target: AWSPriceListService.DescribeServices
{
    "ServiceCode": "AmazonEC2",
    "FormatVersion": "aws_v1",
    "NextToken": null,
    "MaxResults": 1
}
```

Sample Response

```plaintext
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
    "FormatVersion": "aws_v1",
    "NextToken": ".abcdefg123",
    "Services": [
        {
            "AttributeNames": [
                "volumeType",
                "max1opsvolume",
                "instanceCapacity10xlarge",
                "locationType",
                "operation"
            ],
            "ServiceCode": "AmazonEC2"
        }
    ]
}
```

See Also

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

- AWS Command Line Interface
• AWS SDK for .NET
• AWS SDK for C++
• AWS SDK for Go
• AWS SDK for Java
• AWS SDK for JavaScript
• AWS SDK for PHP V3
• AWS SDK for Python
• AWS SDK for Ruby V2
GetAttributeValues
Service: AWS Price List Service

Returns a list of attribute values. Attributes are similar to the details in a Price List API offer file. For a list of available attributes, see Offer File Definitions in the AWS Billing and Cost Management User Guide.

Request Syntax

```json
{
    "AttributeName": "string",
    "MaxResults": number,
    "NextToken": "string",
    "ServiceCode": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

**AttributeName (p. 85)**

The name of the attribute that you want to retrieve the values for, such as `volumeType`.

Type: String

Required: Yes

**MaxResults (p. 85)**

The maximum number of results to return in response.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

**NextToken (p. 85)**

The pagination token that indicates the next set of results that you want to retrieve.

Type: String

Required: No

**ServiceCode (p. 85)**

The service code for the service whose attributes you want to retrieve. For example, if you want the retrieve an EC2 attribute, use `AmazonEC2`.

Type: String

Required: Yes

Response Syntax

```json
{
}
```
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.

**AttributeValues (p. 85)**

The list of values for an attribute. For example, Throughput Optimized HDD and Provisioned IOPS are two available values for the AmazonEC2 volumeType.

Type: Array of AttributeValue (p. 137) objects

**NextToken (p. 85)**

The pagination token that indicates the next set of results to retrieve.

Type: String

Errors

For information about the errors that are common to all actions, see Common Errors (p. 142).

**ExpiredNextTokenException**

The pagination token expired. Try again without a pagination token.

HTTP Status Code: 400

**InternalErrorException**

An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidNextTokenException**

The pagination token is invalid. Try again without a pagination token.

HTTP Status Code: 400

**InvalidParameterException**

One or more parameters had an invalid value.

HTTP Status Code: 400

**NotFoundException**

The requested resource can't be found.

HTTP Status Code: 400
Example

The following is a sample request and response of the GetAttributeValues operation.

Sample Request

```plaintext
POST / HTTP/1.1
Host: api.pricing.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
               SignedHeaders=contenttype;date;host;user-agent;x-amz-date;x-amz-target;x-amzn-
               requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSPriceListService.GetAttributeValues
{
    "ServiceCode": "AmazonEC2",
    "AttributeName": "volumeType",
    "NextToken": null,
    "MaxResults": 2
}
```

Sample Response

```plaintext
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
    "AttributeValues": [
        {
            "Value": "Throughput Optimized HDD"
        },
        {
            "Value": "Provisioned IOPS"
        }
    ],
    "NextToken": "GpgauTGIY7LGezucl5LV0w==:7GzYJ0nw0DBTJ2J66EcTIIynE601uXWQtTRgioJsQadBnDVgHPzIlen4BUQnPCLpseEk9RQQWAwFZ/9/cTw9GldnPOHN98s/FdmJP7wKU3QQpQ8Mqr5KOEbkISaqY7WdIL0dkL7hHwPtE5iCERYaMng9gC/CyBU1vAQs7R3vNN4M5jBdv3wosWqASS1LBVB6tgW78YL22KhssoItM/jWW+aP6Jqtq4mlxp/c6DWALt+XLFwHU/CbketimPPXyqHF3/UXDw=="
}
```

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
GetProducts
Service: AWS Price List Service

Returns a list of all products that match the filter criteria.

Request Syntax

```
{
    "Filters": [ 
        
        
    ],
    "FormatVersion": "string",
    "MaxResults": number,
    "NextToken": "string",
    "ServiceCode": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 140).

The request accepts the following data in JSON format.

Filters (p. 89)

The list of filters that limit the returned products. only products that match all filters are returned.

Type: Array of Filter (p. 138) objects

Required: No

FormatVersion (p. 89)

The format version that you want the response to be in.

Valid values are: aws_v1

Type: String

Required: No

MaxResults (p. 89)

The maximum number of results to return in the response.

Type: Integer

Valid Range: Minimum value of 1. Maximum value of 100.

Required: No

NextToken (p. 89)

The pagination token that indicates the next set of results that you want to retrieve.

Type: String
GetProducts

Required: No

**ServiceCode (p. 89)**
The code for the service whose products you want to retrieve.

Type: String

Required: No

**Response Syntax**

```json
{
  "FormatVersion": "string",
  "NextToken": "string",
  "PriceList": [ "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.

**FormatVersion (p. 90)**
The format version of the response. For example, aws_v1.

Type: String

**NextToken (p. 90)**
The pagination token that indicates the next set of results to retrieve.

Type: String

**PriceList (p. 90)**
The list of products that match your filters. The list contains both the product metadata and the price information.

Type: Array of strings

**Errors**

For information about the errors that are common to all actions, see [Common Errors (p. 142)].

**ExpiredNextTokenException**
The pagination token expired. Try again without a pagination token.

HTTP Status Code: 400

**InternalErrorException**
An error on the server occurred during the processing of your request. Try again later.

HTTP Status Code: 400

**InvalidNextTokenException**
The pagination token is invalid. Try again without a pagination token.
HTTP Status Code: 400

`InvalidParameterException`

One or more parameters had an invalid value.

HTTP Status Code: 400

`NotFoundException`

The requested resource can’t be found.

HTTP Status Code: 400

**Example**

The following is a sample request and response of the GetProducts operation.

**Sample Request**

```
POST / HTTP/1.1
Host: api.pricing.<region>.<domain>
x-amz-Date: <Date>
Authorization: AWS4-HMAC-SHA256 Credential=<Credential>,
SignedHeaders=content-type;date;host;user-agent;x-amz-date;x-amzn-requestid,Signature=<Signature>
User-Agent: <UserAgentString>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Connection: Keep-Alive
X-Amz-Target: AWSPriceListService.GetProducts
{
    "Filters": [
    {
        "Type": "TERM_MATCH",
        "Field": "ServiceCode",
        "Value": "AmazonEC2"
    },
    {
        "Type": "TERM_MATCH",
        "Field": "volumeType",
        "Value": "Provisioned IOPS"
    }
    ],
    "FormatVersion": "aws_v1",
    "NextToken": null,
    "MaxResults": 1
}
```

**Sample Response**

```
HTTP/1.1 200 OK
x-amzn-RequestId: <RequestId>
Content-Type: application/x-amz-json-1.1
Content-Length: <PayloadSizeBytes>
Date: <Date>
{
    "FormatVersion": "aws_v1",
    "NextToken": "57r3UcqRjDujbzWfHF7Ciw==:ywSmZsD3mpQsIMkYybSj+VAT+kGmmWfgqX9dGmIoJzk7RunVeamioOGthdWSO2a7YRojC0+2Y4dJmuN1ZvqYbNhXs+Aj2jxfn7xGmJncN1Z7sEuAsVCuTAvAQmCwamtk6kXz4YnnooV62FjVY32An40d9+wAxV7+FImvhUHi/+f8afgZGh2zPUlH8jIV9uUtj00Hg6+DhPuuKxh+WB111E/aoKpP5m3c==",
```
GetProducts

"PriceList": [
  {
    "product": {
      "productFamily": "Storage",
      "attributes": {
        "storageMedia": "SSD-backed",
        "maxThroughputVolume": "320 MB/sec",
        "volumeType": " Provisioned
        IOPS",
        "maxIopsVolume": "20000",
        "servicecode": "AmazonEC2",
        "usageType": "CAN1-EBS:VolumeUsage.piops",
        "locationType": "AWS Region",
        "location": "Canada (Central)",
        "servicename": "Amazon Elastic Compute Cloud",
        "maxVolumeSize": "16 TiB",
        "operation": ":",
        "sku": "WQGC34PB2AWS8R4U",
        "serviceCode": "AmazonEC2",
        "terms": {
          "OnDemand": {
            "WQGC34PB2AWS8R4U.JRTCKXETXF": {
              "priceDimensions": {
                "WQGC34PB2AWS8R4U.JRTCKXETXF.6YS6EN2CT7": {
                  "unit": "GB-Mo",
                  "endRange": "Inf",
                  "description": "$0.138 per GB-month of Provisioned IOPS SSD (io1) provisioned storage - Canada (Central)",
                  "appliesTo": [],
                  "rateCode": "WQGC34PB2AWS8R4U.JRTCKXETXF",
                  "beginRange": "0",
                  "pricePerUnit": {
                    "$USD": "0.1380000000"
                  }
                }
              },
              "offerTermCode": "JRTCKXETXF",
              "termAttributes": {}
            }
          }
        },
        "version": "20170901182201",
        "publicationDate": "2017-09-01T18:22:01Z"
      }
    }
  }
],

See Also

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

- AWS Command Line Interface
- AWS SDK for .NET
- AWS SDK for C++
- AWS SDK for Go
- AWS SDK for Java
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V2
Data Types

The following data types are supported by AWS Cost Explorer Service:

- Coverage (p. 95)
- CoverageByTime (p. 96)
- CoverageHours (p. 97)
- DateInterval (p. 98)
- DimensionValues (p. 99)
- DimensionValuesWithAttributes (p. 100)
- EC2InstanceDetails (p. 101)
- EC2Specification (p. 103)
- Expression (p. 104)
- Group (p. 106)
- GroupDefinition (p. 107)
- InstanceDetails (p. 108)
- MetricValue (p. 109)
- RDSInstanceDetails (p. 110)
- ReservationAggregates (p. 112)
- ReservationCoverageGroup (p. 113)
- ReservationPurchaseRecommendation (p. 114)
- ReservationPurchaseRecommendationDetail (p. 116)
- ReservationPurchaseRecommendationMetadata (p. 119)
- ReservationPurchaseRecommendationSummary (p. 120)
- ReservationUtilizationGroup (p. 121)
- ResultByTime (p. 122)
- ServiceSpecification (p. 123)
- TagValues (p. 124)
- UtilizationByTime (p. 125)

The following data types are supported by AWS Budgets:

- Budget (p. 126)
- CalculatedSpend (p. 128)
- CostTypes (p. 129)
- Notification (p. 131)
- NotificationWithSubscribers (p. 133)
- Spend (p. 134)
- Subscriber (p. 135)
- TimePeriod (p. 136)

The following data types are supported by AWS Price List Service:

- AttributeValue (p. 137)
- Filter (p. 138)
• Service (p. 139)

AWS Cost Explorer Service

The following data types are supported by AWS Cost Explorer Service:

• Coverage (p. 95)
• CoverageByTime (p. 96)
• CoverageHours (p. 97)
• DateInterval (p. 98)
• DimensionValues (p. 99)
• DimensionValuesWithAttributes (p. 100)
• EC2InstanceDetails (p. 101)
• EC2Specification (p. 103)
• Expression (p. 104)
• Group (p. 106)
• GroupDefinition (p. 107)
• InstanceDetails (p. 108)
• MetricValue (p. 109)
• RDSInstanceDetails (p. 110)
• ReservationAggregates (p. 112)
• ReservationCoverageGroup (p. 113)
• ReservationPurchaseRecommendation (p. 114)
• ReservationPurchaseRecommendationDetail (p. 116)
• ReservationPurchaseRecommendationMetadata (p. 119)
• ReservationPurchaseRecommendationSummary (p. 120)
• ReservationUtilizationGroup (p. 121)
• ResultByTime (p. 122)
• ServiceSpecification (p. 123)
• TagValues (p. 124)
• UtilizationByTime (p. 125)
Coverage
Service: AWS Cost Explorer Service

The amount of instance usage that a reservation covered.

Contents

CoverageHours

The amount of instance usage that a reservation covered, in hours.

Type: CoverageHours (p. 97) object

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
CoverageByTime
Service: AWS Cost Explorer Service

Reservation coverage for a specified period, in hours.

Contents

Groups
The groups of instances that are covered by a reservation.
Type: Array of ReservationCoverageGroup (p. 113) objects
Required: No

TimePeriod
The period over which this coverage was used.
Type: DateInterval (p. 98) object
Required: No

Total
The total reservation coverage, in hours.
Type: Coverage (p. 95) object
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
CoverageHours
Service: AWS Cost Explorer Service

How long a running instance either used a reservation or was On-Demand.

Contents

CoverageHoursPercentage
The percentage of instance hours that are covered by a reservation.
Type: String
Required: No

OnDemandHours
The number of instance running hours that are covered by On-Demand Instances.
Type: String
Required: No

ReservedHours
The number of instance running hours that are covered by reservations.
Type: String
Required: No

TotalRunningHours
The total instance usage, in hours.
Type: String
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
**DateInterval**

*Service: AWS Cost Explorer Service*

The time period that you want the usage and costs for.

**Contents**

**End**

The end of the time period that you want the usage and costs for. The end date is exclusive. For example, if `end` is `2017-05-01`, AWS retrieves cost and usage data from the start date up to, but not including, `2017-05-01`.

Type: String

Pattern: `\d{4}-\d{2}-\d{2}`

Required: Yes

**Start**

The beginning of the time period that you want the usage and costs for. The start date is inclusive. For example, if `start` is `2017-01-01`, AWS retrieves cost and usage data starting at `2017-01-01` up to the end date.

Type: String

Pattern: `\d{4}-\d{2}-\d{2}`

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
DimensionValues
Service: AWS Cost Explorer Service

The metadata that you can use to filter and group your results. You can use GetDimensionValues to find specific values.

Contents

Key
The names of the metadata types that you can use to filter and group your results. For example, AZ returns a list of Availability Zones.

Type: String

Valid Values: AZ | INSTANCE_TYPE | LINKED_ACCOUNT | OPERATION | PURCHASE_TYPE | REGION | SERVICE | USAGE_TYPE | USAGE_TYPE_GROUP | RECORD_TYPE | OPERATING_SYSTEM | TENANCY | SCOPE | PLATFORM | SUBSCRIPTION_ID | LEGAL_ENTITY_NAME | DEPLOYMENT_OPTION | DATABASE_ENGINE | CACHE_ENGINE | INSTANCE_TYPE_FAMILY

Required: No

Values
The metadata values that you can use to filter and group your results. You can use GetDimensionValues to find specific values.

Type: Array of strings

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
DimensionValuesWithAttributes

Service: AWS Cost Explorer Service

The metadata of a specific type that you can use to filter and group your results. You can use GetDimensionValues to find specific values.

Contents

Attributes

The attribute that applies to a specific Dimension.

Type: String to string map

Required: No

Value

The value of a dimension with a specific attribute.

Type: String

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
**EC2InstanceDetails**

Service: AWS Cost Explorer Service

Details about the EC2 instances that AWS recommends that you purchase.

**Contents**

**AvailabilityZone**

The Availability Zone of the recommended reservation.

Type: String

Required: No

**CurrentGeneration**

Whether the recommendation is for a current generation instance.

Type: Boolean

Required: No

**Family**

The instance family of the recommended reservation.

Type: String

Required: No

**InstanceType**

The type of instance that AWS recommends.

Type: String

Required: No

**Platform**

The platform of the recommended reservation. The platform is the specific combination of operating system, license model, and software on an instance.

Type: String

Required: No

**Region**

The AWS Region of the recommended reservation.

Type: String

Required: No

**SizeFlexEligible**

Whether the recommended reservation is size flexible.

Type: Boolean

Required: No
Tenancy

Whether the recommended reservation is dedicated or shared.

Type: String

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
EC2Specification
Service: AWS Cost Explorer Service
The EC2 hardware specifications that you want AWS to provide recommendations for.

Contents

OfferingClass
Whether you want a recommendation for standard or convertible reservations.
Type: String
Valid Values: STANDARD | CONVERTIBLE
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Expression
Service: AWS Cost Explorer Service

Use Expression to filter by cost or by usage. There are two patterns:

- Simple dimension values - You can set the dimension name and values for the filters that you plan to use. For example, you can filter for INSTANCE_TYPE==m4.xlarge OR INSTANCE_TYPE==c4.large. The Expression for that looks like this:

  ```json
  { "Dimensions": { "Key": "INSTANCE_TYPE", "Values": [ "m4.xlarge", "c4.large" ] } }
  ```

  The list of dimension values are OR'd together to retrieve cost or usage data. You can create Expression and DimensionValues objects using either with* methods or set* methods in multiple lines.

- Compound dimension values with logical operations - You can use multiple Expression types and the logical operators AND/OR/NOT to create a list of one or more Expression objects. This allows you to filter on more advanced options. For example, you can filter on ((INSTANCE_TYPE == m4.large OR INSTANCE_TYPE == m3.large) OR (TAG.Type == Type1)) AND (USAGE_TYPE != DataTransfer). The Expression for that looks like this:

  ```json
  { "And": [ { "Or": [ { "Dimensions": { "Key": "INSTANCE_TYPE", "Values": [ "m4.x.large", "c4.large" ] } }, { "Tags": { "Key": "TagName", "Values": [ "Value1" ] } } ], "Not": [ { "Dimensions": { "Key": "USAGE_TYPE", "Values": [ "DataTransfer" ] } } ] } ] }
  ```

  **Note**
  Because each Expression can have only one operator, the service returns an error if more than one is specified. The following example shows an Expression object that creates an error.

  ```json
  { "And": [ ... ], "DimensionValues": { "Dimension": "USAGE_TYPE", "Values": [ "DataTransfer" ] } }
  ```

Contents

**And**

Return results that match both Dimension objects.

Type: Array of Expression (p. 104) objects

Required: No

**Dimensions**

The specific Dimension to use for Expression.

Type: DimensionValues (p. 99) object

Required: No

**Not**

Return results that don't match a Dimension object.

Type: Expression (p. 104) object

Required: No
Or

Return results that match either Dimension object.

Type: Array of Expression (p. 104) objects

Required: No

Tags

The specific Tag to use for Expression.

Type: TagValues (p. 124) object

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
**Group**
Service: AWS Cost Explorer Service

One level of grouped data within the results.

**Contents**

**Keys**

The keys that are included in this group.

Type: Array of strings

Required: No

**Metrics**

The metrics that are included in this group.

Type: String to `MetricValue (p. 109)` object map

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
GroupDefinition
Service: AWS Cost Explorer Service

Represents a group when you specify a group by criteria, or in the response to a query with a specific grouping.

Contents

Key

The string that represents a key for a specified group.

Type: String

Required: No

Type

The string that represents the type of group.

Type: String

Valid Values: DIMENSION | TAG

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
InstanceDetails
Service: AWS Cost Explorer Service

Details about the instances that AWS recommends that you purchase.

Contents

EC2InstanceDetails

The EC2 instances that AWS recommends that you purchase.

Type: EC2InstanceDetails (p. 101) object

Required: No

RDSInstanceDetails

The RDS instances that AWS recommends that you purchase.

Type: RDSInstanceDetails (p. 110) object

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
MetricValue
Service: AWS Cost Explorer Service
The aggregated value for a metric.

Contents

Amount
The actual number that represents the metric.

Type: String
Required: No

Unit
The unit that the metric is given in.

Type: String
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
RDSInstanceDetails
Service: AWS Cost Explorer Service

Details about the RDS instances that AWS recommends that you purchase.

Contents

CurrentGeneration
Whether the recommendation is for a current generation instance.
Type: Boolean
Required: No

DatabaseEngine
The database engine that the recommended reservation supports.
Type: String
Required: No

DeploymentOption
Whether the recommendation is for a reservation in a single availability zone or a reservation with a backup in a second availability zone.
Type: String
Required: No

Family
The instance family of the recommended reservation.
Type: String
Required: No

InstanceType
The type of instance that AWS recommends.
Type: String
Required: No

LicenseModel
The license model that the recommended reservation supports.
Type: String
Required: No

Region
The AWS Region of the recommended reservation.
Type: String
Required: No
**SizeFlexEligible**

Whether the recommended reservation is size flexible.

Type: Boolean

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ReservationAggregates
Service: AWS Cost Explorer Service
The aggregated numbers for your RI usage.

Contents

PurchasedHours
How many RI hours that you purchased.
Type: String
Required: No

TotalActualHours
The total number of RI hours that you used.
Type: String
Required: No

UnusedHours
The number of RI hours that you didn't use.
Type: String
Required: No

UtilizationPercentage
The percentage of RI time that you used.
Type: String
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ReservationCoverageGroup
Service: AWS Cost Explorer Service
A group of reservations that share a set of attributes.

Contents

Attributes
The attributes for this group of reservations.
Type: String to string map
Required: No

Coverage
How much instance usage this group of reservations covered.
Type: Coverage (p. 95) object
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ReservationPurchaseRecommendation

Service: AWS Cost Explorer Service

A specific reservation that AWS recommends for purchase.

Contents

AccountScope

The account scope that AWS recommends that you purchase this instance for. For example, you can purchase this reservation for an entire organization in AWS Organizations.

Type: String

Valid Values: PAYER

Required: No

LookbackPeriodInDays

How many days of previous usage that AWS takes into consideration when making this recommendation.

Type: String

Valid Values: SEVEN_DAYS | THIRTY_DAYS | SIXTY_DAYS

Required: No

PaymentOption

The payment option for the reservation. For example, AllUpfront or NoUpfront.

Type: String

Valid Values: NO_UPFRONT | PARTIAL_UPFRONT | ALL_UPFRONT

Required: No

RecommendationDetails

Details about the recommended purchases.

Type: Array of ReservationPurchaseRecommendationDetail (p. 116) objects

Required: No

RecommendationSummary

A summary about the recommended purchase.

Type: ReservationPurchaseRecommendationSummary (p. 120) object

Required: No

ServiceSpecification

Hardware specifications for the service that you want recommendations for.

Type: ServiceSpecification (p. 123) object

Required: No
**TermInYears**

The term of the reservation that you want recommendations for, in years.

Type: String

Valid Values: **ONE_YEAR** | **THREE_YEARS**

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ReservationPurchaseRecommendationDetail

Service: AWS Cost Explorer Service

Details about your recommended reservation purchase.

Contents

**AverageNormalizedUnitsUsedPerHour**

The average number of normalized units that you used in an hour during the historical period. AWS uses this to calculate your recommended reservation purchases.

Type: String

Required: No

**AverageNumberOfInstancesUsedPerHour**

The average number of instances that you used in an hour during the historical period. AWS uses this to calculate your recommended reservation purchases.

Type: String

Required: No

**AverageUtilization**

The average utilization of your instances. AWS uses this to calculate your recommended reservation purchases.

Type: String

Required: No

**CurrencyCode**

The currency code that AWS used to calculate the costs for this instance.

Type: String

Required: No

**EstimatedBreakEvenInMonths**

How long AWS estimates that it takes for this instance to start saving you money, in months.

Type: String

Required: No

**EstimatedMonthlyOnDemandCost**

How much AWS estimates that you spend on On-Demand Instances in a month.

Type: String

Required: No

**EstimatedMonthlySavingsAmount**

How much AWS estimates that this specific recommendation could save you in a month.

Type: String

Required: No
EstimatedMonthlySavingsPercentage

How much AWS estimates that this specific recommendation could save you in a month, as a percentage of your overall costs.

Type: String
Required: No

EstimatedReservationCostForLookbackPeriod

How much AWS estimates that you would have spent for all usage during the specified historical period if you had had a reservation.

Type: String
Required: No

InstanceDetails

Details about the instances that AWS recommends that you purchase.

Type: InstanceDetails (p. 108) object
Required: No

MaximumNormalizedUnitsUsedPerHour

The maximum number of normalized units that you used in an hour during the historical period. AWS uses this to calculate your recommended reservation purchases.

Type: String
Required: No

MaximumNumberOfInstancesUsedPerHour

The maximum number of instances that you used in an hour during the historical period. AWS uses this to calculate your recommended reservation purchases.

Type: String
Required: No

MinimumNormalizedUnitsUsedPerHour

The minimum number of hours that you used in an hour during the historical period. AWS uses this to calculate your recommended reservation purchases.

Type: String
Required: No

MinimumNumberOfInstancesUsedPerHour

The minimum number of instances that you used in an hour during the historical period. AWS uses this to calculate your recommended reservation purchases.

Type: String
Required: No

RecommendedNormalizedUnitsToPurchase

The number of normalized units that AWS recommends that you purchase.

Type: String
Required: No

**RecommendedNumberOfInstancesToPurchase**

The number of instances that AWS recommends that you purchase.

Type: String

Required: No

**RecurringStandardMonthlyCost**

How much purchasing this instance costs you on a monthly basis.

Type: String

Required: No

**UpfrontCost**

How much purchasing this instance costs you upfront.

Type: String

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ReservationPurchaseRecommendationMetadata
Service: AWS Cost Explorer Service

Information about this specific recommendation, such as the time stamp for when AWS made a specific recommendation.

Contents

GenerationTimestamp
The time stamp for when AWS made this recommendation.
Type: String
Required: No

RecommendationId
The ID for this specific recommendation.
Type: String
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ReservationPurchaseRecommendationSummary

Service: AWS Cost Explorer Service

A summary about this recommendation, such as the currency code, the amount that AWS estimates you could save, and the total amount of reservation to purchase.

Contents

CurrencyCode

The currency code used for this recommendation.

Type: String

Required: No

TotalEstimatedMonthlySavingsAmount

The total amount that AWS estimates that this recommendation could save you in a month.

Type: String

Required: No

TotalEstimatedMonthlySavingsPercentage

The total amount that AWS estimates that this recommendation could save you in a month, as a percentage of your costs.

Type: String

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ReservationUtilizationGroup
Service: AWS Cost Explorer Service
A group of RIs that share a set of attributes.

Contents

Attributes
The attributes for this group of RIs.
Type: String to string map
Required: No

Key
The key for a specific RI attribute.
Type: String
Required: No

Utilization
How much you used this group of RIs.
Type: ReservationAggregates (p. 112) object
Required: No

Value
The value of a specific RI attribute.
Type: String
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
**ResultByTime**

Service: AWS Cost Explorer Service

The result that is associated with a time period.

**Contents**

**Estimated**

Whether this result is estimated.

Type: Boolean

Required: No

**Groups**

The groups that are included in this time period.

Type: Array of Group (p. 106) objects

Required: No

**TimePeriod**

The time period covered by a result.

Type: DateInterval (p. 98) object

Required: No

**Total**

The total amount of cost or usage accrued during the time period.

Type: String to MetricValue (p. 109) object map

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
ServiceSpecification
Service: AWS Cost Explorer Service

Hardware specifications for the service that you want recommendations for.

Contents

EC2Specification

The EC2 hardware specifications that you want AWS to provide recommendations for.

Type: EC2Specification (p. 103) object

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
TagValues
Service: AWS Cost Explorer Service

The values that are available for a tag.

Contents

Key
The key for a tag.
Type: String
Required: No

Values
The specific value of a tag.
Type: Array of strings
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
UtilizationByTime

Service: AWS Cost Explorer Service

The amount of utilization, in hours.

Contents

Groups

The groups that are included in this utilization result.

Type: Array of ReservationUtilizationGroup (p. 121) objects

Required: No

TimePeriod

The period of time over which this utilization was used.

Type: DateInterval (p. 98) object

Required: No

Total

The total number of RI hours that were used.

Type: ReservationAggregates (p. 112) object

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2

AWS Budgets

The following data types are supported by AWS Budgets:

- Budget (p. 126)
- CalculatedSpend (p. 128)
- CostTypes (p. 129)
- Notification (p. 131)
- NotificationWithSubscribers (p. 133)
- Spend (p. 134)
- Subscriber (p. 135)
- TimePeriod (p. 136)
**Budget**

Service: AWS Budgets

Represents the output of the `CreateBudget` operation. The content consists of the detailed metadata and data file information, and the current status of the budget object.

This is the ARN pattern for a budget:

`arn:aws:budgetservice::AccountId:budget/budgetName`

**Contents**

**BudgetLimit**

The total amount of cost, usage, RI utilization, or RI coverage that you want to track with your budget.

*BudgetLimit* is required for cost or usage budgets, but optional for RI utilization or coverage budgets. RI utilization or coverage budgets default to 100, which is the only valid value for RI utilization or coverage budgets.

Type: `Spend (p. 134)` object

Required: No

**BudgetName**

The name of a budget. The name must be unique within accounts. The `:` and `\` characters are not allowed in `BudgetName`.

Type: String

Length Constraints: Maximum length of 100.

Pattern: `[^:\]+`

Required: Yes

**BudgetType**

Whether this budget tracks monetary costs, usage, RI utilization, or RI coverage.

Type: String

Valid Values: `USAGE | COST | RI_UTILIZATION | RI_COVERAGE`

Required: Yes

**CalculatedSpend**

The actual and forecasted cost or usage that the budget tracks.

Type: `CalculatedSpend (p. 128)` object

Required: No

**CostFilters**

The cost filters, such as service or region, that are applied to a budget.

Type: String to array of strings map

Required: No
AWS Cost Explorer Service Cost Management APIs

CostTypes

The types of costs that are included in this Cost budget.

Usage, RI_utilization, and RI_coverage budgets do not have CostTypes.

Type: CostTypes (p. 129) object

Required: No

TimePeriod

The period of time that is covered by a budget. The period has a start date and an end date. The start date must come before the end date. The end date must come before 06/15/87 00:00 UTC.

If you create your budget and don't specify a start date, AWS defaults to the start of your chosen time period (DAILY, MONTHLY, QUARTERLY, or ANNUALLY). For example, if you created your budget on January 24, 2018, chose DAILY, and didn't set a start date, AWS set your start date to 01/24/18 00:00 UTC. If you chose MONTHLY, AWS set your start date to 01/01/18 00:00 UTC. If you didn't specify an end date, AWS set your end date to 06/15/87 00:00 UTC. The defaults are the same for the AWS Billing and Cost Management console and the API.

You can change either date with the UpdateBudget operation.

After the end date, AWS deletes the budget and all associated notifications and subscribers.

Type: TimePeriod (p. 136) object

Required: No

TimeUnit

The length of time until a budget resets the actual and forecasted spend. DAILY is available only for RI_utilization and RI_coverage budgets.

Type: String

Valid Values: DAILY | MONTHLY | QUARTERLY | ANNUALLY

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
**CalculatedSpend**

Service: AWS Budgets

The spend objects that are associated with this budget. The actualSpend tracks how much you've used, cost, usage, or RI units, and the forecastedSpend tracks how much you are predicted to spend if your current usage remains steady.

For example, if it is the 20th of the month and you have spent 50 dollars on Amazon EC2, your actualSpend is 50 USD, and your forecastedSpend is 75 USD.

**Contents**

**ActualSpend**

The amount of cost, usage, or RI units that you have used.

Type: Spend (p. 134) object

Required: Yes

**ForecastedSpend**

The amount of cost, usage, or RI units that you are forecasted to use.

Type: Spend (p. 134) object

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
CostTypes
Service: AWS Budgets

The types of cost that are included in a COST budget, such as tax and subscriptions.

USAGE, RI_UTILIZATION, and RI_COVERAGE budgets do not have CostTypes.

Contents

IncludeCredit

Specifies whether a budget includes credits.

The default value is true.

Type: Boolean
Required: No

IncludeDiscount

Specifies whether a budget includes discounts.

The default value is true.

Type: Boolean
Required: No

IncludeOtherSubscription

Specifies whether a budget includes non-RI subscription costs.

The default value is true.

Type: Boolean
Required: No

IncludeRecurring

Specifies whether a budget includes recurring fees such as monthly RI fees.

The default value is true.

Type: Boolean
Required: No

IncludeRefund

Specifies whether a budget includes refunds.

The default value is true.

Type: Boolean
Required: No

IncludeSubscription

 Specifies whether a budget includes subscriptions.

The default value is true.
IncludeSupport

Specifies whether a budget includes support subscription fees.

The default value is true.

Type: Boolean
Required: No

IncludeTax

Specifies whether a budget includes taxes.

The default value is true.

Type: Boolean
Required: No

IncludeUpfront

Specifies whether a budget includes upfront RI costs.

The default value is true.

Type: Boolean
Required: No

UseAmortized

Specifies whether a budget uses the amortized rate.

The default value is false.

Type: Boolean
Required: No

UseBlended

Specifies whether a budget uses a blended rate.

The default value is false.

Type: Boolean
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Notification

Service: AWS Budgets

A notification that is associated with a budget. A budget can have up to five notifications.

Each notification must have at least one subscriber. A notification can have one SNS subscriber and up to 10 email subscribers, for a total of 11 subscribers.

For example, if you have a budget for 200 dollars and you want to be notified when you go over 160 dollars, create a notification with the following parameters:

- A notificationType of ACTUAL
- A comparisonOperator of GREATER_THAN
- A notification threshold of 80

Contents

ComparisonOperator

The comparison that is used for this notification.

Type: String

Valid Values: GREATER_THAN | LESS_THAN | EQUAL_TO

Required: Yes

NotificationType

Whether the notification is for how much you have spent (ACTUAL) or for how much you are forecasted to spend (FORECASTED).

Type: String

Valid Values: ACTUAL | FORECASTED

Required: Yes

Threshold

The threshold that is associated with a notification. Thresholds are always a percentage.

Type: Double

Valid Range: Minimum value of 0.1. Maximum value of 1000000000.

Required: Yes

ThresholdType

The type of threshold for a notification. For ACTUAL thresholds, AWS notifies you when you go over the threshold. For FORECASTED thresholds, AWS notifies you when you are forecasted to go over the threshold.

Type: String

Valid Values: PERCENTAGE | ABSOLUTE_VALUE

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
NotificationWithSubscribers

Service: AWS Budgets

A notification with subscribers. A notification can have one SNS subscriber and up to 10 email subscribers, for a total of 11 subscribers.

Contents

Notification

The notification that is associated with a budget.

Type: Notification (p. 131) object

Required: Yes

Subscribers

A list of subscribers who are subscribed to this notification.

Type: Array of Subscriber (p. 135) objects

Array Members: Minimum number of 1 item. Maximum number of 11 items.

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Spend
Service: AWS Budgets

The amount of cost or usage that is measured for a budget.

For example, a Spend for 3 GB of S3 usage would have the following parameters:

- An Amount of 3
- A unit of GB

Contents

Amount

The cost or usage amount that is associated with a budget forecast, actual spend, or budget threshold.

Type: String

Pattern: \[0-9\]*\(\.?\)[0-9]+

Required: Yes

Unit

The unit of measurement that is used for the budget forecast, actual spend, or budget threshold, such as dollars or GB.

Type: String

Length Constraints: Minimum length of 1.

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
**Subscriber**

Service: AWS Budgets

The subscriber to a budget notification. The subscriber consists of a subscription type and either an Amazon SNS topic or an email address.

For example, an email subscriber would have the following parameters:

- A `subscriptionType` of `EMAIL`
- An address of `example@example.com`

**Contents**

**Address**

The address that AWS sends budget notifications to, either an SNS topic or an email.

Type: String

Length Constraints: Minimum length of 1.

Required: Yes

**SubscriptionType**

The type of notification that AWS sends to a subscriber.

Type: String

Valid Values: `SNS` | `EMAIL`

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
TimePeriod
Service: AWS Budgets

The period of time that is covered by a budget. The period has a start date and an end date. The start date must come before the end date. There are no restrictions on the end date.

Contents

End
The end date for a budget. If you didn't specify an end date, AWS set your end date to 06/15/87 00:00 UTC. The defaults are the same for the AWS Billing and Cost Management console and the API.

After the end date, AWS deletes the budget and all associated notifications and subscribers. You can change your end date with the UpdateBudget operation.

Type: Timestamp
Required: No

Start
The start date for a budget. If you created your budget and didn't specify a start date, AWS defaults to the start of your chosen time period (DAILY, MONTHLY, QUARTERLY, or ANNUALLY). For example, if you created your budget on January 24, 2018, chose DAILY, and didn't set a start date, AWS set your start date to 01/24/18 00:00 UTC. If you chose MONTHLY, AWS set your start date to 01/01/18 00:00 UTC. The defaults are the same for the AWS Billing and Cost Management console and the API.

You can change your start date with the UpdateBudget operation.

Type: Timestamp
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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2

AWS Price List Service

The following data types are supported by AWS Price List Service:

- AttributeValue (p. 137)
- Filter (p. 138)
- Service (p. 139)
AttributeValue
Service: AWS Price List Service

The values of a given attribute, such as Throughput Optimized HDD or Provisioned IOPS for the Amazon EC2 volumeType attribute.

Contents

Value

The specific value of an attributeName.

Type: String

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Filter

Service: AWS Price List Service

The constraints that you want all returned products to match.

Contents

Field

The product metadata field that you want to filter on. You can filter by just the service code to see all products for a specific service, filter by just the attribute name to see a specific attribute for multiple services, or use both a service code and an attribute name to retrieve only products that match both fields.

Valid values include: ServiceCode, and all attribute names

For example, you can filter by the AmazonEC2 service code and the volumeType attribute name to get the prices for only Amazon EC2 volumes.

Type: String

Required: Yes

Type

The type of filter that you want to use.

Valid values are: TERM_MATCH. TERM_MATCH returns only products that match both the given filter field and the given value.

Type: String

Valid Values: TERM_MATCH

Required: Yes

Value

The service code or attribute value that you want to filter by. If you are filtering by service code this is the actual service code, such as AmazonEC2. If you are filtering by attribute name, this is the attribute value that you want the returned products to match, such as a Provisioned IOPS volume.

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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
Service
Service: AWS Price List Service

The metadata for a service, such as the service code and available attribute names.

Contents

**AttributeNames**

- The attributes that are available for this service.
- Type: Array of strings
- Required: No

**ServiceCode**

- The code for the AWS service.
- Type: String
- 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 Go
- AWS SDK for Java
- AWS SDK for Ruby V2
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 Signature Version 4 Signing Process in the Amazon Web Services General Reference.

**Action**

The action to be performed.

Type: string  
Required: Yes

**Version**

The API version that the request is written for, expressed in the format YYYY-MM-DD.

Type: string  
Required: Yes

**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/YYYYMDD/region/service/aws4_request.

For more information, see Task 2: Create a String to Sign for Signature Version 4 in the Amazon Web Services General Reference.

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 Handling Dates in Signature Version 4 in the Amazon Web Services General Reference.

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 Security Token Service, go to AWS Services That Work with IAM in the IAM User Guide.

Condition: If you're using temporary security credentials from the AWS Security Token Service, 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 Task 1: Create a Canonical Request For Signature Version 4 in the Amazon Web Services General Reference.

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 Errors

This section lists the errors common to the API actions of all AWS services. For errors specific to an API action for this service, see the topic for that API action.

**AccessDeniedException**

You do not have sufficient access to perform this action.

HTTP Status Code: 400

**IncompleteSignature**

The request signature does not conform to AWS standards.

HTTP Status Code: 400

**InternalFailure**

The request processing has failed because of an unknown error, exception or failure.

HTTP Status Code: 500

**InvalidAction**

The action or operation requested is invalid. Verify that the action is typed correctly.

HTTP Status Code: 400

**InvalidClientTokenId**

The X.509 certificate or AWS access key ID provided does not exist in our records.

HTTP Status Code: 403

**InvalidParameterCombination**

Parameters that must not be used together were used together.

HTTP Status Code: 400

**InvalidParameterValue**

An invalid or out-of-range value was supplied for the input parameter.

HTTP Status Code: 400

**InvalidQueryParameter**

The AWS query string is malformed or does not adhere to AWS standards.

HTTP Status Code: 400

**MalformedQueryString**

The query string contains a syntax error.

HTTP Status Code: 404

**MissingAction**

The request is missing an action or a required parameter.

HTTP Status Code: 400
MissingAuthenticationToken

The request must contain either a valid (registered) AWS access key ID or X.509 certificate.

HTTP Status Code: 403

MissingParameter

A required parameter for the specified action is not supplied.

HTTP Status Code: 400

OptInRequired

The AWS access key ID needs a subscription for the service.

HTTP Status Code: 403

RequestExpired

The request reached the service more than 15 minutes after the date stamp on the request or more than 15 minutes after the request expiration date (such as for pre-signed URLs), or the date stamp on the request is more than 15 minutes in the future.

HTTP Status Code: 400

ServiceUnavailable

The request has failed due to a temporary failure of the server.

HTTP Status Code: 503

ThrottlingException

The request was denied due to request throttling.

HTTP Status Code: 400

ValidationException

The input fails to satisfy the constraints specified by an AWS service.

HTTP Status Code: 400