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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 DynamoDB database tables in your production environment.

Service Endpoint

The Cost Explorer API provides the following endpoint:

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

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. 3)
- GetDimensionValues (p. 9)
- GetReservationUtilization (p. 14)
- GetTags (p. 20)

The following actions are supported by AWS Price List Service:

- DescribeServices (p. 24)
- GetAttributeValues (p. 28)
- GetProducts (p. 32)

AWS Cost Explorer Service

The following actions are supported by AWS Cost Explorer Service:

- GetCostAndUsage (p. 3)
- GetDimensionValues (p. 9)
- GetReservationUtilization (p. 14)
- GetTags (p. 20)
GetCostAndUsage
Service: AWS Cost Explorer Service

Retrieve 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. See the GetDimensionValues action for a complete list of the valid dimensions. Master accounts in an organization have access to all member accounts.

Request Syntax

```json
{
  "Filter": {
    "And": [
      "Expression"
    ],
    "Dimensions": {
      "Key": "string",
      "Values": [ "string" ]
    },
    "Not": "Expression",
    "Or": [
      "Expression"
    ],
    "Tags": {
      "Key": "string",
      "Values": [ "string" ]
    }
  },
  "Granularity": "string",
  "GroupBy": [
    
  ],
  "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. 53).

The request accepts the following data in JSON format.

Filter (p. 3)

Filters AWS costs by different dimensions. For example, you can specify SERVICE and LINKED_ACCOUNT and get the costs 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 the Expression object or More Examples.

Type: Expression (p. 40) object
Required: No

**Granularity (p. 3)**

Sets the AWS cost granularity to **MONTHLY** or **DAILY**.

Type: String

Valid Values: **DAILY** | **MONTHLY**

Required: No

**GroupBy (p. 3)**

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**, **LINKED_ACCOUNT**, **OPERATION**, **PLATFORM**, **PURCHASE_TYPE**, **REGION**, **SERVICE**, **TAGS**, **TENANCY**, and **USAGE_TYPE**.

Type: Array of **GroupDefinition (p. 43)** objects

Required: No

**Metrics (p. 3)**

Which metrics are returned in the query. For more information about amortized costs, see **Choosing Advanced Options**. 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 **AmortizedCost**, **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**.

Type: Array of strings

Required: No

**NextPageToken (p. 3)**

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. 3)**

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. 37)** 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. 5)**

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

Type: Array of GroupDefinition (p. 43) objects

**NextPageToken (p. 5)**

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. 5)**

The time period covered by the results in the response.

Type: Array of ResultByTime (p. 47) objects
Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

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 GetCostAndUsage operation that allows you to retrieve your Amazon S3 costs. For more complex examples, such as multi-level groupings, see More Examples.

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: 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": ["AmortizedCost", "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$Prod"
          ],
          "Metrics": {
            "BlendedCost": {
              "Amount": "39.1603300457",
              "Unit": "USD"
            },
            "UnblendedCost": {
              "Amount": "39.1603300457",
              "Unit": "USD"
            },
            "UsageQuantity": {
              "Amount": "173842.5440074444",
              "Unit": "N/A"
            }
          }
        },
        {
          "Keys": [
            "Amazon Simple Storage Service",
            "Environment$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

You can use GetDimensionValues to retrieve all available filter values for a specific 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. 53).

The request accepts the following data in JSON format.

Context (p. 9)

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 action. 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 CostAndUsage, you can use the following dimensions for searching:

- **AZ** - The Availability Zone. An example is us-east-1a.
- **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
- **OPERATION** - The action performed. Examples include RunInstance and CreateBucket.
- **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 DynamoDB.
- **USAGE_TYPE** - The type of usage. An example is DataTransfer-In-Bytes. The response for the GetDimensionValues action includes a unit attribute, examples of which include GB and Hrs.
- **USAGE_TYPE_GROUP** - The grouping of common usage types. An example is EC2: CloudWatch – Alarms. The response for this action 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.
- **INSTANCE_TYPE** - The type of EC2 instance. An example is m4.xlarge.
AWS Cost Explorer Service Cost Management APIs
GetDimensionValues

- 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 operating system. Examples are Windows or Linux.
- REGION - The AWS region.
- SCOPE - The scope of a reserved instance (RI). Values are regional or a single availability zone.
- TENANCY - The tenancy of a resource. Examples are shared or dedicated.

Type: String
Valid Values: COST_AND_USAGE | RESERVATIONS
Required: No

**Dimension (p. 9)**

The name of the dimension. Different Dimensions are available for different Contexts. 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
Required: Yes

**NextPageToken (p. 9)**

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. 9)**

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

Type: String
Required: No

**TimePeriod (p. 9)**

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. 37) object
Required: Yes

**Response Syntax**

```json
{
    "DimensionValues": [
        {
            "Attributes": {
```

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AWS Cost Explorer Service Cost Management APIs
GetDimensionValues

"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. 10)**

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

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

- AZ - The Availability Zone. An example is us-east-1a.
- 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
- OPERATION - The action performed. Examples include RunInstance and CreateBucket.
- 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 DynamoDB.
- USAGE_TYPE - The type of usage. An example is DataTransfer-In-Bytes. The response for the GetDimensionValues action includes a unit attribute, examples of which include GB and Hrs.
- USAGE_TYPE_GROUP - The grouping of common usage types. An example is EC2: CloudWatch – Alarms. The response for this action 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.
- 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 operating system. Examples are Windows or Linux.
- REGION - The AWS region.
- SCOPE - The scope of a reserved instance (RI). Values are regional or a single availability zone.
- TENANCY - The tenancy of a resource. Examples are shared or dedicated.

Type: Array of DimensionValuesWithAttributes (p. 39) objects

**NextPageToken (p. 10)**

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. 10)

The number of results that AWS returned at one time.

Type: Integer

TotalSize (p. 10)

The total number of search results.

Type: Integer

Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

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 GetDimensionValues operation that allows you to search for all the member accounts in an organization that have "Elastic" in their name:

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.GetDimensionValues
{
  "TimePeriod": {
    "Start": "2017-01-01",
    "End": "2017-05-18"
  },
  "SearchString": "Elastic",
  "Dimension": "Service"
}
```

Sample Response

```
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"
    },
    {
        "Attributes": {},
        "Value": "Amazon Elastic Compute Cloud - Compute"
    },
    {
        "Attributes": {},
        "Value": "Amazon Elasticsearch Service"
    }
],
"ReturnSize": 4,
"TotalSize": 4
}

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

You can retrieve the Reservation utilization for your account. Master accounts in an organization have access to their associated 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

```
{
  "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. 53).

The request accepts the following data in JSON format.

Filter (p. 14)

Filters utilization data by using different dimensions. 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. 40) object

Required: No
Granularity (p. 14)

Sets the AWS cost granularity to MONTHLY or DAILY. If both GroupBy and granularity are not set, GetReservationUtilization defaults to DAILY. If GroupBy is set, Granularity can't be set, and the response object doesn't include MONTHLY or DAILY granularity.

Type: String
Valid Values: DAILY | MONTHLY
Required: No

GroupBy (p. 14)

Groups only by SUBSCRIPTION_ID. Metadata is included.

Type: Array of GroupDefinition (p. 43) objects
Required: No

NextPageToken (p. 14)

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. 14)

Sets the start and end dates for retrieving reserve 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. 37) object
Required: Yes

Response Syntax

```
{
   "NextPageToken": "string",
   "Total": {
       "PurchasedHours": "string",
       "TotalActualHours": "string",
       "UnusedHours": "string",
       "UtilizationPercentage": "string"
   },
   "UtilizationsByTime": [
       {
           "Groups": [
               {
                   "Attributes": {
                       "string" : "string"
                   },
                   "Key": "string",
                   "Utilization": {
                       "PurchasedHours": "string",
                       "TotalActualHours": "string",
                       "UnusedHours": "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. 15)

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. 15)

The total amount of time that you utilized your RIs.

Type: ReservationAggregates (p. 45) object

UtilizationsByTime (p. 15)

The amount of time that you utilized your RIs.

Type: Array of UtilizationByTime (p. 49) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

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:
AWS Cost Explorer Service Cost Management APIs
GetReservationUtilization

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",
            "StartDateDateTime": "2016-09-28T15:22:32.000Z",
            "SubscriptionId": "359809062",
            "SubscriptionStatus": "Active",
            "SubscriptionType": "All Upfront",
            "Tenancy": "Shared"
          }
        }
      ]
    }
  ]
AWS Cost Explorer Service Cost Management APIs
GetReservationUtilization

},
"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",
    "StartDate": "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-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",
    "StartDate": "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

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

Request Syntax

```json
{
    "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. 53).

The request accepts the following data in JSON format.

**NextPageToken (p. 20)**

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. 20)**

The value that you want to search for.

Type: String

Required: No

**TagKey (p. 20)**

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

Type: String

Required: No

**TimePeriod (p. 20)**

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. 37) 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. 21)

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. 21)

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

Type: Integer

Tags (p. 21)

The tags that match your request.

Type: Array of strings

TotalSize (p. 21)

The total number of query results.

Type: Integer

Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

LimitExceeded Exception

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

HTTP Status Code: 400

Example

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

Sample Request

POST / HTTP/1.1
Host: api.ce.<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: CostExplorer.GetTags
{
  "TimePeriod": {
    "Start": "2017-01-01",
    "End": "2017-05-18"
  },
  "TagKey": "Project",
  "SearchString": "secretProject"
}

Sample Response

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 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. 24)
- GetAttributeValues (p. 28)
- GetProducts (p. 32)
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. 53).

The request accepts the following data in JSON format.

FormatVersion (p. 24)

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

Valid values are: aws_v1

Type: String

Required: No

MaxResults (p. 24)

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. 24)

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

Type: String

Required: No

ServiceCode (p. 24)

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. 25)**

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

Type: String

**NextToken (p. 25)**

The pagination token for the next set of retrievable results.

Type: String

**Services (p. 25)**

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

Type: Array of Service (p. 52) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 55).

**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**

```
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.DescribeServices
{
    "ServiceCode": "AmazonEC2",
    "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": "abcdefg123",
    "Services": [
        {
            "AttributeNames": [
                "volumeType",
                "maxIopsVolume",
                "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. 53).

The request accepts the following data in JSON format.

**AttributeName (p. 28)**

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

Type: String

Required: Yes

**MaxResults (p. 28)**

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. 28)**

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

Type: String

Required: No

**ServiceCode (p. 28)**

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

Type: String

Required: Yes

**Response Syntax**

```json
{
    
```
"AttributeValues": [
    {
        "Value": "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.

**AttributeValues (p. 28)**

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. 50) objects

**NextToken (p. 28)**

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. 55).

**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

```
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

```
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": "GpguaTIgY7IGezuc15LV0w==:7GzJY0nw0DB7J66EcTIIynE6Oi1uXWQtTRqioJzQadRnDVgHFsI1en4BEQnFCLpseBk9RQQAwA+Z/9/cTw9GldnPOHN98+FdmJ7wKU3QQpQM05K0eBkIaA4vAaYyLdL7tHoPteE51CEByAmg9gcC/yBU1vQ6f7R3vNN4435s9sWqASS1IbVBi6tgW78YL22KbssoItM/jW+aP6Jqtq4mlxp/c6DWA1+xLPwHU/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 Cost Explorer Service Cost Management APIs
GetAttributeValue

- 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

```json
{
    "Filters": [
    {
        "Field": "string",
        "Type": "string",
        "Value": "string"
    }
],
    "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. 53).

The request accepts the following data in JSON format.

Filters (p. 32)

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

Type: Array of Filter (p. 51) objects

Required: No

FormatVersion (p. 32)

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

Valid values are: aws_v1

Type: String

Required: No

MaxResults (p. 32)

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. 32)

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

Type: String
**GetProducts**

*Required: No*

**ServiceCode (p. 32)**

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. 33)**

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

*Type: String*

**NextToken (p. 33)**

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

*Type: String*

**PriceList (p. 33)**

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. 55).

**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

```plaintext
POST / HTTP/1.1
Host: api.pricing.<region>.<domain>
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

```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": "57r3UcqRjDujbzWfHF7Ciwc==:ywSmZsD3mtpQmQLQfSosMKyYbSj
  +vAT+kGmWMPqg+K9DGMjoJxz7UnVemioOgthdWSO2a7Yk0jCO+2Yd4JmuNL2QvbNHzxS
  +A7Jufn7xGmJncN12TseEuAswCTAvAgNcwamtk6kuZ4YDnnooV62FjKv32An40d9+wAxv7+FImvhUHi/
  +f8afgZGh2zPUL8jV9uOtj0oH9p8+DhFpuuxx+WB1f1E/a0KpPSm3c==",
```
"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.6YS6EN2CT7",
                    "beginRange": "01",
                    "pricePerUnit": {
                      "USD": "0.1380000000"
                    }
                  }
                }
              }
            }
          }
        }
      },
      "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.6YS6EN2CT7",
                "beginRange": "01",
                "pricePerUnit": {
                  "USD": "0.1380000000"
                }
              }
            }
          }
        }
      }
    }
]

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:

- DateInterval (p. 37)
- DimensionValues (p. 38)
- DimensionValuesWithAttributes (p. 39)
- Expression (p. 40)
- Group (p. 42)
- GroupDefinition (p. 43)
- MetricValue (p. 44)
- ReservationAggregates (p. 45)
- ReservationUtilizationGroup (p. 46)
- ResultByTime (p. 47)
- TagValues (p. 48)
- UtilizationByTime (p. 49)

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

- AttributeValue (p. 50)
- Filter (p. 51)
- Service (p. 52)

AWS Cost Explorer Service

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

- DateInterval (p. 37)
- DimensionValues (p. 38)
- DimensionValuesWithAttributes (p. 39)
- Expression (p. 40)
- Group (p. 42)
- GroupDefinition (p. 43)
- MetricValue (p. 44)
- ReservationAggregates (p. 45)
- ReservationUtilizationGroup (p. 46)
- ResultByTime (p. 47)
- TagValues (p. 48)
- UtilizationByTime (p. 49)
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 the end is 2017-05-01, then the cost and usage data is retrieved from the start date 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, then the cost and usage data is retrieved 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

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
**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" ] } }, { "Tag": { "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 will create an error.

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

**Contents**

**And**

Return results that match both Dimension objects.

Type: Array of Expression (p. 40) objects

Required: No

**Dimensions**

The specific Dimension to use for Expression.

Type: DimensionValues (p. 38) object

Required: No

**Not**

Return results that don't match Dimension.

Type: Expression (p. 40) object

Required: No
Or

Return results that match either Dimension.

Type: Array of Expression (p. 40) objects

Required: No

Tags

The specific Tag to use for Expression.

Type: TagValues (p. 48) 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 included in this group.

Type: Array of strings

Required: No

**Metrics**

The metrics included in this group.

Type: String to MetricValue (p. 44) 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
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
ReservationAggregates
Service: AWS Cost Explorer Service

The aggregated numbers for your RI usage.

Contents

PurchasedHours
How many RI hours 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
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. 45) 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 or not this result is estimated.
Type: Boolean
Required: No

Groups
The groups that are included in this time period.
Type: Array of Group (p. 42) objects
Required: No

TimePeriod
The time period covered by a result.
Type: DateInterval (p. 37) object
Required: No

Total
The total amount of cost or usage accrued during the time period.
Type: String to MetricValue (p. 44) 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
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. 46) objects

Required: No

TimePeriod

The period of time over which this utilization was used.

Type: DateInterval (p. 37) object

Required: No

Total

The total number of RI hours that were used.

Type: ReservationAggregates (p. 45) 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 Price List Service

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

- AttributeValue (p. 50)
- Filter (p. 51)
- Service (p. 52)
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/YYYYMMDD/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

ValidationError

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

HTTP Status Code: 400