AWS Compute Optimizer

API Reference

API Version 2019-11-01

AWS Compute Optimizer: API Reference

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Welcome

AWS Compute Optimizer is a service that analyzes the configuration and utilization metrics of your AWS compute resources, such as Amazon EC2 instances, Amazon EC2 Auto Scaling groups, AWS Lambda functions, and Amazon EBS volumes. It reports whether your resources are optimal, and generates optimization recommendations to reduce the cost and improve the performance of your workloads. Compute Optimizer also provides recent utilization metric data, in addition to projected utilization metric data for the recommendations, which you can use to evaluate which recommendation provides the best price-performance trade-off. The analysis of your usage patterns can help you decide when to move or resize your running resources, and still meet your performance and capacity requirements. For more information about Compute Optimizer, including the required permissions to use the service, see the AWS Compute Optimizer User Guide.

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Actions

The following actions are supported:

DescribeRecommendationExportJobs

Describes recommendation export jobs created in the last seven days.

Use the ExportAutoScalingGroupRecommendations (p. 6) or ExportEC2InstanceRecommendations (p. 15) actions to request an export of your recommendations. Then use the DescribeRecommendationExportJobs (p. 3) action to view your export jobs.

Request Syntax

```
{
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "jobIds": [ "string" ],
   "maxResults": number,
   "nextToken": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

filters (p. 3)

An array of objects to specify a filter that returns a more specific list of export jobs.

Type: Array of JobFilter (p. 76) objects

Required: No

jobIds (p. 3)

The identification numbers of the export jobs to return.

An export job ID is returned when you create an export using the ExportAutoScalingGroupRecommendations (p. 6) or ExportEC2InstanceRecommendations (p. 15) actions.

All export jobs created in the last seven days are returned if this parameter is omitted.

Type: Array of strings

Required: No

maxResults (p. 3)

The maximum number of export jobs to return with a single request.

To retrieve the remaining results, make another request with the returned `nextToken` value.

Type: Integer

Required: No

nextToken (p. 3)

The token to advance to the next page of export jobs.

Type: String

Required: No

Response Syntax

```
{
   "nextToken": "string",
   "recommendationExportJobs": [
      {
         "creationTimestamp": number,
         "destination": {
            "s3": {
               "bucket": "string",
               "key": "string",
               "metadataKey": "string"
            }
         },
         "failureReason": "string",
         "jobId": "string",
         "lastUpdatedTimestamp": number,
         "resourceType": "string",
         "status": "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. 4)

The token to use to advance to the next page of export jobs.

This value is null when there are no more pages of export jobs to return.

Type: String

recommendationExportJobs (p. 4)

An array of objects that describe recommendation export jobs.

Type: Array of RecommendationExportJob (p. 88) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ResourceNotFoundException

A resource that is required for the action doesn't exist.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ExportAutoScalingGroupRecommendations

Exports optimization recommendations for Auto Scaling groups.

Recommendations are exported in a comma-separated values (.csv) file, and its metadata in a JavaScript Object Notation (JSON) (.json) file, to an existing Amazon Simple Storage Service (Amazon S3) bucket that you specify. For more information, see Exporting Recommendations in the *Compute Optimizer User Guide*.

You can have only one Auto Scaling group export job in progress per AWS Region.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "fieldsToExport": [ "string" ],
   "fileFormat": "string",
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "includeMemberAccounts": boolean,
   "recommendationPreferences": {
      "cpuVendorArchitectures": [ "string" ]
   },
   "s3DestinationConfig": {
      "bucket": "string",
      "keyPrefix": "string"
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 6)

The IDs of the AWS accounts for which to export Auto Scaling group recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to export recommendations.

This parameter cannot be specified together with the include member accounts parameter. The parameters are mutually exclusive.

Recommendations for member accounts are not included in the export if this parameter, or the include member accounts parameter, is omitted.

You can specify multiple account IDs per request.

Type: Array of strings

Required: No

fieldsToExport (p. 6)

The recommendations data to include in the export file. For more information about the fields that can be exported, see Exported files in the *Compute Optimizer User Guide*.

Type: Array of strings

Valid Values: `AccountId | AutoScalingGroupArn | AutoScalingGroupName | Finding | UtilizationMetricsCpuMaximum | UtilizationMetricsMemoryMaximum | UtilizationMetricsEbsReadOpsPerSecondMaximum | UtilizationMetricsEbsWriteOpsPerSecondMaximum | UtilizationMetricsEbsReadBytesPerSecondMaximum | UtilizationMetricsEbsWriteBytesPerSecondMaximum | UtilizationMetricsDiskReadOpsPerSecondMaximum | UtilizationMetricsDiskWriteOpsPerSecondMaximum | UtilizationMetricsDiskReadBytesPerSecondMaximum | UtilizationMetricsDiskWriteBytesPerSecondMaximum | UtilizationMetricsNetworkInBytesPerSecondMaximum | UtilizationMetricsNetworkOutBytesPerSecondMaximum | UtilizationMetricsNetworkPacketsInPerSecondMaximum | UtilizationMetricsNetworkPacketsOutPerSecondMaximum | LookbackPeriodInDays | CurrentConfigurationInstanceType | CurrentConfigurationDesiredCapacity | CurrentConfigurationMinSize | CurrentConfigurationMaxSize | CurrentOnDemandPrice | CurrentStandardOneYearNoUpfrontReservedPrice | CurrentStandardThreeYearNoUpfrontReservedPrice | CurrentVCpus | CurrentMemory | CurrentStorage | CurrentNetwork | RecommendationOptionsConfigurationInstanceType | RecommendationOptionsConfigurationDesiredCapacity | RecommendationOptionsConfigurationMinSize | RecommendationOptionsConfigurationMaxSize | RecommendationOptionsProjectedUtilizationMetricsCpuMaximum | RecommendationOptionsProjectedUtilizationMetricsMemoryMaximum | RecommendationOptionsPerformanceRisk | RecommendationOptionsOnDemandPrice | RecommendationOptionsStandardOneYearNoUpfrontReservedPrice | RecommendationOptionsStandardThreeYearNoUpfrontReservedPrice | RecommendationOptionsVcpus | RecommendationOptionsMemory | RecommendationOptionsStorage | RecommendationOptionsNetwork | LastRefreshTimestamp`

Required: No

fileFormat (p. 6)

The format of the export file.

The only export file format currently supported is `Csv`.

Type: String

Valid Values: `Csv`

Required: No

filters (p. 6)

An array of objects to specify a filter that exports a more specific set of Auto Scaling group recommendations.

Type: Array of Filter (p. 66) objects

Required: No

includeMemberAccounts (p. 6)

Indicates whether to include recommendations for resources in all member accounts of the organization if your account is the management account of an organization.

The member accounts must also be opted in to Compute Optimizer, and trusted access for Compute Optimizer must be enabled in the organization account. For more information, see Compute Optimizer and AWS Organizations trusted access in the *AWS Compute Optimizer User Guide*.

Recommendations for member accounts of the organization are not included in the export file if this parameter is omitted.

This parameter cannot be specified together with the account IDs parameter. The parameters are mutually exclusive.

Recommendations for member accounts are not included in the export if this parameter, or the account IDs parameter, is omitted.

Type: Boolean

Required: No

recommendationPreferences (p. 6)

An object to specify the preferences for the Auto Scaling group recommendations to export.

Type: RecommendationPreferences (p. 90) object

Required: No

s3DestinationConfig (p. 6)

An object to specify the destination Amazon Simple Storage Service (Amazon S3) bucket name and key prefix for the export job.

You must create the destination Amazon S3 bucket for your recommendations export before you create the export job. Compute Optimizer does not create the S3 bucket for you. After you create the S3 bucket, ensure that it has the required permissions policy to allow Compute Optimizer to write the export file to it. If you plan to specify an object prefix when you create the export job, you must include the object prefix in the policy that you add to the S3 bucket. For more information, see Amazon S3 Bucket Policy for Compute Optimizer in the *Compute Optimizer User Guide*.

Type: S3DestinationConfig (p. 95) object

Required: Yes

Response Syntax

```
{
   "jobId": "string",
   "s3Destination": {
      "bucket": "string",
      "key": "string",
      "metadataKey": "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.

jobId (p. 8)

The identification number of the export job.

Use the DescribeRecommendationExportJobs (p. 3) action, and specify the job ID to view the status of an export job.

Type: String

s3Destination (p. 8)

An object that describes the destination Amazon S3 bucket of a recommendations export file.

Type: S3Destination (p. 94) object

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

LimitExceededException

The request exceeds a limit of the service.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ExportEBSVolumeRecommendations

Exports optimization recommendations for Amazon EBS volumes.

Recommendations are exported in a comma-separated values (.csv) file, and its metadata in a JavaScript Object Notation (JSON) (.json) file, to an existing Amazon Simple Storage Service (Amazon S3) bucket that you specify. For more information, see Exporting Recommendations in the *Compute Optimizer User Guide*.

You can have only one Amazon EBS volume export job in progress per AWS Region.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "fieldsToExport": [ "string" ],
   "fileFormat": "string",
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "includeMemberAccounts": boolean,
   "s3DestinationConfig": {
      "bucket": "string",
      "keyPrefix": "string"
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 11)

The IDs of the AWS accounts for which to export Amazon EBS volume recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to export recommendations.

This parameter cannot be specified together with the include member accounts parameter. The parameters are mutually exclusive.

Recommendations for member accounts are not included in the export if this parameter, or the include member accounts parameter, is omitted.

You can specify multiple account IDs per request.

Type: Array of strings

Required: No

fieldsToExport (p. 11)

The recommendations data to include in the export file. For more information about the fields that can be exported, see Exported files in the *Compute Optimizer User Guide*.

Type: Array of strings

Valid Values: `AccountId | VolumeArn | Finding | UtilizationMetricsVolumeReadOpsPerSecondMaximum | UtilizationMetricsVolumeWriteOpsPerSecondMaximum | UtilizationMetricsVolumeReadBytesPerSecondMaximum | UtilizationMetricsVolumeWriteBytesPerSecondMaximum | LookbackPeriodInDays | CurrentConfigurationVolumeType | CurrentConfigurationVolumeBaselineIOPS | CurrentConfigurationVolumeBaselineThroughput | CurrentConfigurationVolumeBurstIOPS | CurrentConfigurationVolumeBurstThroughput | CurrentConfigurationVolumeSize | CurrentMonthlyPrice | RecommendationOptionsConfigurationVolumeType | RecommendationOptionsConfigurationVolumeBaselineIOPS | RecommendationOptionsConfigurationVolumeBaselineThroughput | RecommendationOptionsConfigurationVolumeBurstIOPS | RecommendationOptionsConfigurationVolumeBurstThroughput | RecommendationOptionsConfigurationVolumeSize | RecommendationOptionsMonthlyPrice | RecommendationOptionsPerformanceRisk | LastRefreshTimestamp`

Required: No

fileFormat (p. 11)

The format of the export file.

The only export file format currently supported is `Csv`.

Type: String

Valid Values: `Csv`

Required: No

filters (p. 11)

An array of objects to specify a filter that exports a more specific set of Amazon EBS volume recommendations.

Type: Array of EBSFilter (p. 61) objects

Required: No

includeMemberAccounts (p. 11)

Indicates whether to include recommendations for resources in all member accounts of the organization if your account is the management account of an organization.

The member accounts must also be opted in to Compute Optimizer, and trusted access for Compute Optimizer must be enabled in the organization account. For more information, see Compute Optimizer and AWS Organizations trusted access in the *AWS Compute Optimizer User Guide*.

Recommendations for member accounts of the organization are not included in the export file if this parameter is omitted.

This parameter cannot be specified together with the account IDs parameter. The parameters are mutually exclusive.

Recommendations for member accounts are not included in the export if this parameter, or the account IDs parameter, is omitted.

Type: Boolean

Required: No

s3DestinationConfig (p. 11)

Describes the destination Amazon Simple Storage Service (Amazon S3) bucket name and key prefix for a recommendations export job.

You must create the destination Amazon S3 bucket for your recommendations export before you create the export job. Compute Optimizer does not create the S3 bucket for you. After you create the S3 bucket, ensure that it has the required permission policy to allow Compute Optimizer to write the export file to it. If you plan to specify an object prefix when you create the export job, you must include the object prefix in the policy that you add to the S3 bucket. For more information, see Amazon S3 Bucket Policy for Compute Optimizer in the *Compute Optimizer User Guide*.

Type: S3DestinationConfig (p. 95) object

Required: Yes

Response Syntax

```
{
   "jobId": "string",
   "s3Destination": {
      "bucket": "string",
      "key": "string",
      "metadataKey": "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.

jobId (p. 13)

The identification number of the export job.

Use the DescribeRecommendationExportJobs (p. 3) action, and specify the job ID to view the status of an export job.

Type: String

s3Destination (p. 13)

Describes the destination Amazon Simple Storage Service (Amazon S3) bucket name and object keys of a recommendations export file, and its associated metadata file.

Type: S3Destination (p. 94) object

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

LimitExceededException

The request exceeds a limit of the service.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ExportEC2InstanceRecommendations

Exports optimization recommendations for Amazon EC2 instances.

Recommendations are exported in a comma-separated values (.csv) file, and its metadata in a JavaScript Object Notation (JSON) (.json) file, to an existing Amazon Simple Storage Service (Amazon S3) bucket that you specify. For more information, see Exporting Recommendations in the *Compute Optimizer User Guide*.

You can have only one Amazon EC2 instance export job in progress per AWS Region.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "fieldsToExport": [ "string" ],
   "fileFormat": "string",
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "includeMemberAccounts": boolean,
   "recommendationPreferences": {
      "cpuVendorArchitectures": [ "string" ]
   },
   "s3DestinationConfig": {
      "bucket": "string",
      "keyPrefix": "string"
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 15)

The IDs of the AWS accounts for which to export instance recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to export recommendations.

This parameter cannot be specified together with the include member accounts parameter. The parameters are mutually exclusive.

Recommendations for member accounts are not included in the export if this parameter, or the include member accounts parameter, is omitted.

You can specify multiple account IDs per request.

Type: Array of strings

Required: No

fieldsToExport (p. 15)

The recommendations data to include in the export file. For more information about the fields that can be exported, see Exported files in the *Compute Optimizer User Guide*.

Type: Array of strings

Valid Values: `AccountId | InstanceArn | InstanceName | Finding | FindingReasonCodes | LookbackPeriodInDays | CurrentInstanceType | UtilizationMetricsCpuMaximum | UtilizationMetricsMemoryMaximum | UtilizationMetricsEbsReadOpsPerSecondMaximum | UtilizationMetricsEbsWriteOpsPerSecondMaximum | UtilizationMetricsEbsReadBytesPerSecondMaximum | UtilizationMetricsEbsWriteBytesPerSecondMaximum | UtilizationMetricsDiskReadOpsPerSecondMaximum | UtilizationMetricsDiskWriteOpsPerSecondMaximum | UtilizationMetricsDiskReadBytesPerSecondMaximum | UtilizationMetricsDiskWriteBytesPerSecondMaximum | UtilizationMetricsNetworkInBytesPerSecondMaximum | UtilizationMetricsNetworkOutBytesPerSecondMaximum | UtilizationMetricsNetworkPacketsInPerSecondMaximum | UtilizationMetricsNetworkPacketsOutPerSecondMaximum | CurrentOnDemandPrice | CurrentStandardOneYearNoUpfrontReservedPrice | CurrentStandardThreeYearNoUpfrontReservedPrice | CurrentVCpus | CurrentMemory | CurrentStorage | CurrentNetwork | RecommendationOptionsInstanceType | RecommendationOptionsProjectedUtilizationMetricsCpuMaximum | RecommendationOptionsProjectedUtilizationMetricsMemoryMaximum | RecommendationOptionsPlatformDifferences | RecommendationOptionsPerformanceRisk | RecommendationOptionsVcpus | RecommendationOptionsMemory | RecommendationOptionsStorage | RecommendationOptionsNetwork | RecommendationOptionsOnDemandPrice | RecommendationOptionsStandardOneYearNoUpfrontReservedPrice | RecommendationOptionsStandardThreeYearNoUpfrontReservedPrice | RecommendationsSourcesRecommendationSourceArn | RecommendationsSourcesRecommendationSourceType | LastRefreshTimestamp`

Required: No

fileFormat (p. 15)

The format of the export file.

The only export file format currently supported is `Csv`.

Type: String

Valid Values: `Csv`

Required: No

filters (p. 15)

An array of objects to specify a filter that exports a more specific set of instance recommendations.

Type: Array of Filter (p. 66) objects

Required: No

includeMemberAccounts (p. 15)

Indicates whether to include recommendations for resources in all member accounts of the organization if your account is the management account of an organization.

The member accounts must also be opted in to Compute Optimizer, and trusted access for Compute Optimizer must be enabled in the organization account. For more information, see Compute Optimizer and AWS Organizations trusted access in the *AWS Compute Optimizer User Guide*.

Recommendations for member accounts of the organization are not included in the export file if this parameter is omitted.

Recommendations for member accounts are not included in the export if this parameter, or the account IDs parameter, is omitted.

Type: Boolean

Required: No

recommendationPreferences (p. 15)

An object to specify the preferences for the Amazon EC2 instance recommendations to export.

Type: RecommendationPreferences (p. 90) object

Required: No

s3DestinationConfig (p. 15)

An object to specify the destination Amazon Simple Storage Service (Amazon S3) bucket name and key prefix for the export job.

You must create the destination Amazon S3 bucket for your recommendations export before you create the export job. Compute Optimizer does not create the S3 bucket for you. After you create the S3 bucket, ensure that it has the required permissions policy policy to allow Compute Optimizer to write the export file to it. If you plan to specify an object prefix when you create the export job, you must include the object prefix in the that you add to the S3 bucket. For more information, see Amazon S3 Bucket Policy for Compute Optimizer in the *Compute Optimizer User Guide*.

Type: S3DestinationConfig (p. 95) object

Required: Yes

Response Syntax

```
{
   "jobId": "string",
   "s3Destination": {
      "bucket": "string",
      "key": "string",
      "metadataKey": "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.

jobId (p. 17)

The identification number of the export job.

Use the DescribeRecommendationExportJobs (p. 3) action, and specify the job ID to view the status of an export job.

Type: String

s3Destination (p. 17)

An object that describes the destination Amazon S3 bucket of a recommendations export file.

Type: S3Destination (p. 94) object

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

LimitExceededException

The request exceeds a limit of the service.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

ExportLambdaFunctionRecommendations

Exports optimization recommendations for AWS Lambda functions.

Recommendations are exported in a comma-separated values (.csv) file, and its metadata in a JavaScript Object Notation (JSON) (.json) file, to an existing Amazon Simple Storage Service (Amazon S3) bucket that you specify. For more information, see Exporting Recommendations in the *Compute Optimizer User Guide*.

You can have only one Lambda function export job in progress per AWS Region.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "fieldsToExport": [ "string" ],
   "fileFormat": "string",
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "includeMemberAccounts": boolean,
   "s3DestinationConfig": {
      "bucket": "string",
      "keyPrefix": "string"
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 20)

The IDs of the AWS accounts for which to export Lambda function recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to export recommendations.

This parameter cannot be specified together with the include member accounts parameter. The parameters are mutually exclusive.

Recommendations for member accounts are not included in the export if this parameter, or the include member accounts parameter, is omitted.

You can specify multiple account IDs per request.

Type: Array of strings

Required: No

fieldsToExport (p. 20)

The recommendations data to include in the export file. For more information about the fields that can be exported, see Exported files in the *Compute Optimizer User Guide*.

Type: Array of strings

Valid Values: `AccountId | FunctionArn | FunctionVersion | Finding | FindingReasonCodes | NumberOfInvocations | UtilizationMetricsDurationMaximum | UtilizationMetricsDurationAverage | UtilizationMetricsMemoryMaximum | UtilizationMetricsMemoryAverage | LookbackPeriodInDays | CurrentConfigurationMemorySize | CurrentConfigurationTimeout | CurrentCostTotal | CurrentCostAverage | RecommendationOptionsConfigurationMemorySize | RecommendationOptionsCostLow | RecommendationOptionsCostHigh | RecommendationOptionsProjectedUtilizationMetricsDurationLowerBound | RecommendationOptionsProjectedUtilizationMetricsDurationUpperBound | RecommendationOptionsProjectedUtilizationMetricsDurationExpected | LastRefreshTimestamp`

Required: No

fileFormat (p. 20)

The format of the export file.

The only export file format currently supported is `Csv`.

Type: String

Valid Values: `Csv`

Required: No

filters (p. 20)

An array of objects to specify a filter that exports a more specific set of Lambda function recommendations.

Type: Array of LambdaFunctionRecommendationFilter (p. 82) objects

Required: No

includeMemberAccounts (p. 20)

Indicates whether to include recommendations for resources in all member accounts of the organization if your account is the management account of an organization.

The member accounts must also be opted in to Compute Optimizer, and trusted access for Compute Optimizer must be enabled in the organization account. For more information, see Compute Optimizer and AWS Organizations trusted access in the *AWS Compute Optimizer User Guide*.

Recommendations for member accounts of the organization are not included in the export file if this parameter is omitted.

This parameter cannot be specified together with the account IDs parameter. The parameters are mutually exclusive.

Recommendations for member accounts are not included in the export if this parameter, or the account IDs parameter, is omitted.

Type: Boolean

Required: No

s3DestinationConfig (p. 20)

Describes the destination Amazon Simple Storage Service (Amazon S3) bucket name and key prefix for a recommendations export job.

You must create the destination Amazon S3 bucket for your recommendations export before you create the export job. Compute Optimizer does not create the S3 bucket for you. After you create the S3 bucket, ensure that it has the required permission policy to allow Compute Optimizer to write the export file to it. If you plan to specify an object prefix when you create the export job, you must include the object prefix in the policy that you add to the S3 bucket. For more information, see Amazon S3 Bucket Policy for Compute Optimizer in the *Compute Optimizer User Guide*.

Type: S3DestinationConfig (p. 95) object

Required: Yes

Response Syntax

```
{
   "jobId": "string",
   "s3Destination": {
      "bucket": "string",
      "key": "string",
      "metadataKey": "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.

jobId (p. 22)

The identification number of the export job.

Use the DescribeRecommendationExportJobs (p. 3) action, and specify the job ID to view the status of an export job.

Type: String

s3Destination (p. 22)

Describes the destination Amazon Simple Storage Service (Amazon S3) bucket name and object keys of a recommendations export file, and its associated metadata file.

Type: S3Destination (p. 94) object

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

LimitExceededException

The request exceeds a limit of the service.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetAutoScalingGroupRecommendations

Returns Auto Scaling group recommendations.

AWS Compute Optimizer generates recommendations for Amazon EC2 Auto Scaling groups that meet a specific set of requirements. For more information, see the Supported resources and requirements in the *AWS Compute Optimizer User Guide*.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "autoScalingGroupArns": [ "string" ],
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "maxResults": number,
   "nextToken": "string",
   "recommendationPreferences": {
      "cpuVendorArchitectures": [ "string" ]
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 24)

The ID of the AWS account for which to return Auto Scaling group recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to return Auto Scaling group recommendations.

Only one account ID can be specified per request.

Type: Array of strings

Required: No

autoScalingGroupArns (p. 24)

The Amazon Resource Name (ARN) of the Auto Scaling groups for which to return recommendations.

Type: Array of strings

Required: No

filters (p. 24)

An array of objects to specify a filter that returns a more specific list of Auto Scaling group recommendations.

Type: Array of Filter (p. 66) objects

Required: No

maxResults (p. 24)

The maximum number of Auto Scaling group recommendations to return with a single request.

To retrieve the remaining results, make another request with the returned `nextToken` value.

Type: Integer

Required: No

nextToken (p. 24)

The token to advance to the next page of Auto Scaling group recommendations.

Type: String

Required: No

recommendationPreferences (p. 24)

An object to specify the preferences for the Auto Scaling group recommendations to return in the response.

Type: RecommendationPreferences (p. 90) object

Required: No

Response Syntax

```
{
   "autoScalingGroupRecommendations": [
      {
         "accountId": "string",
         "autoScalingGroupArn": "string",
         "autoScalingGroupName": "string",
         "currentConfiguration": {
            "desiredCapacity": number,
            "instanceType": "string",
            "maxSize": number,
            "minSize": number
         },
         "finding": "string",
         "lastRefreshTimestamp": number,
         "lookBackPeriodInDays": number,
         "recommendationOptions": [
            {
               "configuration": {
                  "desiredCapacity": number,
                  "instanceType": "string",
                  "maxSize": number,
                  "minSize": number
               },
               "performanceRisk": number,
               "projectedUtilizationMetrics": [
                  {
                     "name": "string",
                     "statistic": "string",
                     "value": number
                  }
               ],
               "rank": number
            }
```

```
         ],
         "utilizationMetrics": [
            {
               "name": "string",
               "statistic": "string",
               "value": number
            }
         ]
      }
   ],
   "errors": [
      {
         "code": "string",
         "identifier": "string",
         "message": "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.

autoScalingGroupRecommendations (p. 25)

An array of objects that describe Auto Scaling group recommendations.

Type: Array of AutoScalingGroupRecommendation (p. 57) objects

errors (p. 25)

An array of objects that describe errors of the request.

For example, an error is returned if you request recommendations for an unsupported Auto Scaling group.

Type: Array of GetRecommendationError (p. 68) objects

nextToken (p. 25)

The token to use to advance to the next page of Auto Scaling group recommendations.

This value is null when there are no more pages of Auto Scaling group recommendations to return.

Type: String

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ResourceNotFoundException

A resource that is required for the action doesn't exist.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetEBSVolumeRecommendations

Returns Amazon Elastic Block Store (Amazon EBS) volume recommendations.

AWS Compute Optimizer generates recommendations for Amazon EBS volumes that meet a specific set of requirements. For more information, see the Supported resources and requirements in the *AWS Compute Optimizer User Guide*.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "maxResults": number,
   "nextToken": "string",
   "volumeArns": [ "string" ]
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 28)

The ID of the AWS account for which to return volume recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to return volume recommendations.

Only one account ID can be specified per request.

Type: Array of strings

Required: No

filters (p. 28)

An array of objects to specify a filter that returns a more specific list of volume recommendations.

Type: Array of EBSFilter (p. 61) objects

Required: No

maxResults (p. 28)

The maximum number of volume recommendations to return with a single request.

To retrieve the remaining results, make another request with the returned `nextToken` value.

Type: Integer

Required: No

nextToken (p. 28)

The token to advance to the next page of volume recommendations.

Type: String

Required: No

volumeArns (p. 28)

The Amazon Resource Name (ARN) of the volumes for which to return recommendations.

Type: Array of strings

Required: No

Response Syntax

```
{
   "errors": [
      {
         "code": "string",
         "identifier": "string",
         "message": "string"
      }
   ],
   "nextToken": "string",
   "volumeRecommendations": [
      {
         "accountId": "string",
         "currentConfiguration": {
            "volumeBaselineIOPS": number,
            "volumeBaselineThroughput": number,
            "volumeBurstIOPS": number,
            "volumeBurstThroughput": number,
            "volumeSize": number,
            "volumeType": "string"
         },
         "finding": "string",
         "lastRefreshTimestamp": number,
         "lookBackPeriodInDays": number,
         "utilizationMetrics": [
            {
               "name": "string",
               "statistic": "string",
               "value": number
            }
         ],
         "volumeArn": "string",
         "volumeRecommendationOptions": [
            {
               "configuration": {
                  "volumeBaselineIOPS": number,
                  "volumeBaselineThroughput": number,
                  "volumeBurstIOPS": number,
                  "volumeBurstThroughput": number,
                  "volumeSize": number,
                  "volumeType": "string"
               },
               "performanceRisk": number,
               "rank": 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.

errors (p. 29)

An array of objects that describe errors of the request.

For example, an error is returned if you request recommendations for an unsupported volume.

Type: Array of GetRecommendationError (p. 68) objects

nextToken (p. 29)

The token to use to advance to the next page of volume recommendations.

This value is null when there are no more pages of volume recommendations to return.

Type: String

volumeRecommendations (p. 29)

An array of objects that describe volume recommendations.

Type: Array of VolumeRecommendation (p. 102) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ResourceNotFoundException

A resource that is required for the action doesn't exist.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetEC2InstanceRecommendations

Returns Amazon EC2 instance recommendations.

AWS Compute Optimizer generates recommendations for Amazon Elastic Compute Cloud (Amazon EC2) instances that meet a specific set of requirements. For more information, see the Supported resources and requirements in the *AWS Compute Optimizer User Guide*.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "instanceArns": [ "string" ],
   "maxResults": number,
   "nextToken": "string",
   "recommendationPreferences": {
      "cpuVendorArchitectures": [ "string" ]
   }
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 32)

The ID of the AWS account for which to return instance recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to return instance recommendations.

Only one account ID can be specified per request.

Type: Array of strings

Required: No

filters (p. 32)

An array of objects to specify a filter that returns a more specific list of instance recommendations.

Type: Array of Filter (p. 66) objects

Required: No

instanceArns (p. 32)

The Amazon Resource Name (ARN) of the instances for which to return recommendations.

Type: Array of strings

Required: No

maxResults (p. 32)

The maximum number of instance recommendations to return with a single request.

To retrieve the remaining results, make another request with the returned `nextToken` value.

Type: Integer

Required: No

nextToken (p. 32)

The token to advance to the next page of instance recommendations.

Type: String

Required: No

recommendationPreferences (p. 32)

An object to specify the preferences for the Amazon EC2 instance recommendations to return in the response.

Type: RecommendationPreferences (p. 90) object

Required: No

Response Syntax

```
{
   "errors": [
      {
         "code": "string",
         "identifier": "string",
         "message": "string"
      }
   ],
   "instanceRecommendations": [
      {
         "accountId": "string",
         "currentInstanceType": "string",
         "finding": "string",
         "findingReasonCodes": [ "string" ],
         "instanceArn": "string",
         "instanceName": "string",
         "lastRefreshTimestamp": number,
         "lookBackPeriodInDays": number,
         "recommendationOptions": [
            {
               "instanceType": "string",
               "performanceRisk": number,
               "platformDifferences": [ "string" ],
               "projectedUtilizationMetrics": [
                  {
                     "name": "string",
                     "statistic": "string",
                     "value": number
                  }
               ],
               "rank": number
            }
         ],
```

```
         "recommendationSources": [
            {
               "recommendationSourceArn": "string",
               "recommendationSourceType": "string"
            }
         ],
         "utilizationMetrics": [
            {
               "name": "string",
               "statistic": "string",
               "value": number
            }
         ]
      }
   ],
   "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.

errors (p. 33)

An array of objects that describe errors of the request.

For example, an error is returned if you request recommendations for an instance of an unsupported instance family.

Type: Array of GetRecommendationError (p. 68) objects

instanceRecommendations (p. 33)

An array of objects that describe instance recommendations.

Type: Array of InstanceRecommendation (p. 69) objects

nextToken (p. 33)

The token to use to advance to the next page of instance recommendations.

This value is null when there are no more pages of instance recommendations to return.

Type: String

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ResourceNotFoundException

A resource that is required for the action doesn't exist.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetEC2RecommendationProjectedMetrics

Returns the projected utilization metrics of Amazon EC2 instance recommendations.

Note
The `Cpu` and `Memory` metrics are the only projected utilization metrics returned when you run this action. Additionally, the `Memory` metric is returned only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling Memory Utilization with the CloudWatch Agent.

Request Syntax

```
{
   "endTime": number,
   "instanceArn": "string",
   "period": number,
   "recommendationPreferences": {
      "cpuVendorArchitectures": [ "string" ]
   },
   "startTime": number,
   "stat": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

endTime (p. 36)

The timestamp of the last projected metrics data point to return.

Type: Timestamp

Required: Yes

instanceArn (p. 36)

The Amazon Resource Name (ARN) of the instances for which to return recommendation projected metrics.

Type: String

Required: Yes

period (p. 36)

The granularity, in seconds, of the projected metrics data points.

Type: Integer

Required: Yes

recommendationPreferences (p. 36)

An object to specify the preferences for the Amazon EC2 recommendation projected metrics to return in the response.

Type: RecommendationPreferences (p. 90) object

Required: No

startTime (p. 36)

The timestamp of the first projected metrics data point to return.

Type: Timestamp

Required: Yes

stat (p. 36)

The statistic of the projected metrics.

Type: String

Valid Values: `Maximum | Average`

Required: Yes

Response Syntax

```
{
   "recommendedOptionProjectedMetrics": [
      {
         "projectedMetrics": [
            {
               "name": "string",
               "timestamps": [ number ],
               "values": [ number ]
            }
         ],
         "rank": number,
         "recommendedInstanceType": "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.

recommendedOptionProjectedMetrics (p. 37)

An array of objects that describes projected metrics.

Type: Array of RecommendedOptionProjectedMetric (p. 93) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ResourceNotFoundException

A resource that is required for the action doesn't exist.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetEnrollmentStatus

Returns the enrollment (opt in) status of an account to the AWS Compute Optimizer service.

If the account is the management account of an organization, this action also confirms the enrollment status of member accounts of the organization. Use the GetEnrollmentStatusesForOrganization (p. 41) action to get detailed information about the enrollment status of member accounts of an organization.

Response Syntax

```
{
   "lastUpdatedTimestamp": number,
   "memberAccountsEnrolled": boolean,
   "numberOfMemberAccountsOptedIn": number,
   "status": "string",
   "statusReason": "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.

lastUpdatedTimestamp (p. 39)

The Unix epoch timestamp, in seconds, of when the account enrollment status was last updated.

Type: Timestamp

memberAccountsEnrolled (p. 39)

Confirms the enrollment status of member accounts of the organization, if the account is a management account of an organization.

Type: Boolean

numberOfMemberAccountsOptedIn (p. 39)

The count of organization member accounts that are opted in to the service, if your account is an organization management account.

Type: Integer

status (p. 39)

The enrollment status of the account.

Type: String

Valid Values: `Active | Inactive | Pending | Failed`

statusReason (p. 39)

The reason for the enrollment status of the account.

For example, an account might show a status of `Pending` because member accounts of an organization require more time to be enrolled in the service.

Type: String

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetEnrollmentStatusesForOrganization

Returns the AWS Compute Optimizer enrollment (opt-in) status of organization member accounts, if your account is an organization management account.

To get the enrollment status of standalone accounts, use the GetEnrollmentStatus (p. 39) action.

Request Syntax

```
{
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "maxResults": number,
   "nextToken": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

filters (p. 41)

An array of objects to specify a filter that returns a more specific list of account enrollment statuses.

Type: Array of EnrollmentFilter (p. 64) objects

Required: No

maxResults (p. 41)

The maximum number of account enrollment statuses to return with a single request. You can specify up to 100 statuses to return with each request.

To retrieve the remaining results, make another request with the returned `nextToken` value.

Type: Integer

Required: No

nextToken (p. 41)

The token to advance to the next page of account enrollment statuses.

Type: String

Required: No

Response Syntax

```
{
```

```
   "accountEnrollmentStatuses": [
      {
         "accountId": "string",
         "lastUpdatedTimestamp": number,
         "status": "string",
         "statusReason": "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.

accountEnrollmentStatuses (p. 41)

An array of objects that describe the enrollment statuses of organization member accounts.

Type: Array of AccountEnrollmentStatus (p. 55) objects

nextToken (p. 41)

The token to use to advance to the next page of account enrollment statuses.

This value is null when there are no more pages of account enrollment statuses to return.

Type: String

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetLambdaFunctionRecommendations

Returns AWS Lambda function recommendations.

AWS Compute Optimizer generates recommendations for functions that meet a specific set of requirements. For more information, see the Supported resources and requirements in the *AWS Compute Optimizer User Guide*.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "filters": [
      {
         "name": "string",
         "values": [ "string" ]
      }
   ],
   "functionArns": [ "string" ],
   "maxResults": number,
   "nextToken": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 44)

The ID of the AWS account for which to return function recommendations.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to return function recommendations.

Only one account ID can be specified per request.

Type: Array of strings

Required: No

filters (p. 44)

An array of objects to specify a filter that returns a more specific list of function recommendations.

Type: Array of LambdaFunctionRecommendationFilter (p. 82) objects

Required: No

functionArns (p. 44)

The Amazon Resource Name (ARN) of the functions for which to return recommendations.

You can specify a qualified or unqualified ARN. If you specify an unqualified ARN without a function version suffix, Compute Optimizer will return recommendations for the latest (`$LATEST`) version of the function. If you specify a qualified ARN with a version suffix, Compute Optimizer will return

recommendations for the specified function version. For more information about using function versions, see Using versions in the *AWS Lambda Developer Guide*.

Type: Array of strings

Required: No

maxResults (p. 44)

The maximum number of function recommendations to return with a single request.

To retrieve the remaining results, make another request with the returned `nextToken` value.

Type: Integer

Required: No

nextToken (p. 44)

The token to advance to the next page of function recommendations.

Type: String

Required: No

Response Syntax

```
{
   "lambdaFunctionRecommendations": [
      {
         "accountId": "string",
         "currentMemorySize": number,
         "finding": "string",
         "findingReasonCodes": [ "string" ],
         "functionArn": "string",
         "functionVersion": "string",
         "lastRefreshTimestamp": number,
         "lookbackPeriodInDays": number,
         "memorySizeRecommendationOptions": [
            {
               "memorySize": number,
               "projectedUtilizationMetrics": [
                  {
                     "name": "string",
                     "statistic": "string",
                     "value": number
                  }
               ],
               "rank": number
            }
         ],
         "numberOfInvocations": number,
         "utilizationMetrics": [
            {
               "name": "string",
               "statistic": "string",
               "value": number
            }
         ]
      }
   ],
   "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.

lambdaFunctionRecommendations (p. 45)

An array of objects that describe function recommendations.

Type: Array of LambdaFunctionRecommendation (p. 79) objects

nextToken (p. 45)

The token to use to advance to the next page of function recommendations.

This value is null when there are no more pages of function recommendations to return.

Type: String

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

LimitExceededException

The request exceeds a limit of the service.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

GetRecommendationSummaries

Returns the optimization findings for an account.

It returns the number of:

- Amazon EC2 instances in an account that are `Underprovisioned`, `Overprovisioned`, or `Optimized`.
- Auto Scaling groups in an account that are `NotOptimized`, or `Optimized`.
- Amazon EBS volumes in an account that are `NotOptimized`, or `Optimized`.
- Lambda functions in an account that are `NotOptimized`, or `Optimized`.

Request Syntax

```
{
   "accountIds": [ "string" ],
   "maxResults": number,
   "nextToken": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

accountIds (p. 48)

The ID of the AWS account for which to return recommendation summaries.

If your account is the management account of an organization, use this parameter to specify the member account for which you want to return recommendation summaries.

Only one account ID can be specified per request.

Type: Array of strings

Required: No

maxResults (p. 48)

The maximum number of recommendation summaries to return with a single request.

To retrieve the remaining results, make another request with the returned `nextToken` value.

Type: Integer

Required: No

nextToken (p. 48)

The token to advance to the next page of recommendation summaries.

Type: String

Required: No

Response Syntax

```
{
   "nextToken": "string",
   "recommendationSummaries": [
      {
         "accountId": "string",
         "recommendationResourceType": "string",
         "summaries": [
            {
               "name": "string",
               "reasonCodeSummaries": [
                  {
                     "name": "string",
                     "value": number
                  }
               ],
               "value": 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.

nextToken (p. 49)

The token to use to advance to the next page of recommendation summaries.

This value is null when there are no more pages of recommendation summaries to return.

Type: String

recommendationSummaries (p. 49)

An array of objects that summarize a recommendation.

Type: Array of RecommendationSummary (p. 92) objects

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

OptInRequiredException

The account is not opted in to AWS Compute Optimizer.

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

UpdateEnrollmentStatus

Updates the enrollment (opt in and opt out) status of an account to the AWS Compute Optimizer service.

If the account is a management account of an organization, this action can also be used to enroll member accounts of the organization.

You must have the appropriate permissions to opt in to Compute Optimizer, to view its recommendations, and to opt out. For more information, see Controlling access with AWS Identity and Access Management in the *AWS Compute Optimizer User Guide*.

When you opt in, Compute Optimizer automatically creates a service-linked role in your account to access its data. For more information, see Using Service-Linked Roles for AWS Compute Optimizer in the *AWS Compute Optimizer User Guide*.

Request Syntax

```
{
   "includeMemberAccounts": boolean,
   "status": "string"
}
```

Request Parameters

For information about the parameters that are common to all actions, see Common Parameters (p. 105).

The request accepts the following data in JSON format.

includeMemberAccounts (p. 51)

Indicates whether to enroll member accounts of the organization if the account is the management account of an organization.

Type: Boolean

Required: No

status (p. 51)

The new enrollment status of the account.

The following status options are available:

- `Active` - Opts in your account to the Compute Optimizer service. Compute Optimizer begins analyzing the configuration and utilization metrics of your AWS resources after you opt in. For more information, see Metrics analyzed by AWS Compute Optimizer in the *AWS Compute Optimizer User Guide*.
- `Inactive` - Opts out your account from the Compute Optimizer service. Your account's recommendations and related metrics data will be deleted from Compute Optimizer after you opt out.

  Note
  The `Pending` and `Failed` options cannot be used to update the enrollment status of an account. They are returned in the response of a request to update the enrollment status of an account.

Type: String

Valid Values: `Active | Inactive | Pending | Failed`

Required: Yes

Response Syntax

```
{
   "status": "string",
   "statusReason": "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.

status (p. 52)

The enrollment status of the account.

Type: String

Valid Values: `Active | Inactive | Pending | Failed`

statusReason (p. 52)

The reason for the enrollment status of the account. For example, an account might show a status of `Pending` because member accounts of an organization require more time to be enrolled in the service.

Type: String

Errors

For information about the errors that are common to all actions, see Common Errors (p. 107).

AccessDeniedException

You do not have sufficient access to perform this action.

HTTP Status Code: 400

InternalServerException

An internal error has occurred. Try your call again.

HTTP Status Code: 500

InvalidParameterValueException

The value supplied for the input parameter is out of range or not valid.

HTTP Status Code: 400

MissingAuthenticationToken

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

HTTP Status Code: 400

ServiceUnavailableException

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

HTTP Status Code: 500

ThrottlingException

The request was denied due to request throttling.

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 V2
- AWS SDK for JavaScript
- AWS SDK for PHP V3
- AWS SDK for Python
- AWS SDK for Ruby V3

Data Types

The AWS Compute Optimizer API contains several data types that various actions use. This section describes each data type in detail.

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

The following data types are supported:

AccountEnrollmentStatus

Describes the enrollment status of an organization's member accounts in AWS Compute Optimizer.

Contents

accountId

The AWS account ID.

Type: String

Required: No

lastUpdatedTimestamp

The Unix epoch timestamp, in seconds, of when the account enrollment status was last updated.

Type: Timestamp

Required: No

status

The account enrollment status.

Type: String

Valid Values: `Active | Inactive | Pending | Failed`

Required: No

statusReason

The reason for the account enrollment status.

For example, an account might show a status of `Pending` because member accounts of an organization require more time to be enrolled in the 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 V2
- AWS SDK for Ruby V3

AutoScalingGroupConfiguration

Describes the configuration of an Auto Scaling group.

Contents

desiredCapacity

The desired capacity, or number of instances, for the Auto Scaling group.

Type: Integer

Required: No

instanceType

The instance type for the Auto Scaling group.

Type: String

Required: No

maxSize

The maximum size, or maximum number of instances, for the Auto Scaling group.

Type: Integer

Required: No

minSize

The minimum size, or minimum number of instances, for the Auto Scaling group.

Type: Integer

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 V2
- AWS SDK for Ruby V3

AutoScalingGroupRecommendation

Describes an Auto Scaling group recommendation.

Contents

accountId

The AWS account ID of the Auto Scaling group.

Type: String

Required: No

autoScalingGroupArn

The Amazon Resource Name (ARN) of the Auto Scaling group.

Type: String

Required: No

autoScalingGroupName

The name of the Auto Scaling group.

Type: String

Required: No

currentConfiguration

An array of objects that describe the current configuration of the Auto Scaling group.

Type: AutoScalingGroupConfiguration (p. 56) object

Required: No

finding

The finding classification of the Auto Scaling group.

Findings for Auto Scaling groups include:

- **`NotOptimized`** —An Auto Scaling group is considered not optimized when AWS Compute Optimizer identifies a recommendation that can provide better performance for your workload.
- **`Optimized`** —An Auto Scaling group is considered optimized when Compute Optimizer determines that the group is correctly provisioned to run your workload based on the chosen instance type. For optimized resources, Compute Optimizer might recommend a new generation instance type.

Type: String

Valid Values: `Underprovisioned | Overprovisioned | Optimized | NotOptimized`

Required: No

lastRefreshTimestamp

The timestamp of when the Auto Scaling group recommendation was last refreshed.

Type: Timestamp

Required: No

lookBackPeriodInDays

The number of days for which utilization metrics were analyzed for the Auto Scaling group.

Type: Double

Required: No

recommendationOptions

An array of objects that describe the recommendation options for the Auto Scaling group.

Type: Array of AutoScalingGroupRecommendationOption (p. 59) objects

Required: No

utilizationMetrics

An array of objects that describe the utilization metrics of the Auto Scaling group.

Type: Array of UtilizationMetric (p. 97) objects

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 V2
- AWS SDK for Ruby V3

AutoScalingGroupRecommendationOption

Describes a recommendation option for an Auto Scaling group.

Contents

configuration

An array of objects that describe an Auto Scaling group configuration.

Type: AutoScalingGroupConfiguration (p. 56) object

Required: No

performanceRisk

The performance risk of the Auto Scaling group configuration recommendation.

Performance risk indicates the likelihood of the recommended instance type not meeting the resource needs of your workload. Compute Optimizer calculates an individual performance risk score for each specification of the recommended instance, including CPU, memory, EBS throughput, EBS IOPS, disk throughput, disk IOPS, network throughput, and network PPS. The performance risk of the recommended instance is calculated as the maximum performance risk score across the analyzed resource specifications.

The value ranges from `0` - `4`, with `0` meaning that the recommended resource is predicted to always provide enough hardware capability. The higher the performance risk is, the more likely you should validate whether the recommendation will meet the performance requirements of your workload before migrating your resource.

Type: Double

Valid Range: Minimum value of 0. Maximum value of 4.

Required: No

projectedUtilizationMetrics

An array of objects that describe the projected utilization metrics of the Auto Scaling group recommendation option.

> **Note**
> The `Cpu` and `Memory` metrics are the only projected utilization metrics returned. Additionally, the `Memory` metric is returned only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling Memory Utilization with the CloudWatch Agent.

Type: Array of UtilizationMetric (p. 97) objects

Required: No

rank

The rank of the Auto Scaling group recommendation option.

The top recommendation option is ranked as `1`.

Type: Integer

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 V2
- AWS SDK for Ruby V3

EBSFilter

Describes a filter that returns a more specific list of Amazon Elastic Block Store (Amazon EBS) volume recommendations. Use this filter with the GetEBSVolumeRecommendations (p. 28) action.

You can use `LambdaFunctionRecommendationFilter` with the GetLambdaFunctionRecommendations (p. 44) action, `JobFilter` with the DescribeRecommendationExportJobs (p. 3) action, and `Filter` with the GetAutoScalingGroupRecommendations (p. 24) and GetEC2InstanceRecommendations (p. 32) actions.

Contents

name

The name of the filter.

Specify `Finding` to return recommendations with a specific finding classification (for example, `NotOptimized`).

Type: String

Valid Values: `Finding`

Required: No

values

The value of the filter.

The valid values are `Optimized`, or `NotOptimized`.

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 V2
- AWS SDK for Ruby V3

EBSUtilizationMetric

Describes a utilization metric of an Amazon Elastic Block Store (Amazon EBS) volume.

Compare the utilization metric data of your resource against its projected utilization metric data to determine the performance difference between your current resource and the recommended option.

Contents

name

The name of the utilization metric.

The following utilization metrics are available:

- `VolumeReadOpsPerSecond` - The completed read operations per second from the volume in a specified period of time.

  Unit: Count
- `VolumeWriteOpsPerSecond` - The completed write operations per second to the volume in a specified period of time.

  Unit: Count
- `VolumeReadBytesPerSecond` - The bytes read per second from the volume in a specified period of time.

  Unit: Bytes
- `VolumeWriteBytesPerSecond` - The bytes written to the volume in a specified period of time.

  Unit: Bytes

Type: String

Valid Values: `VolumeReadOpsPerSecond | VolumeWriteOpsPerSecond | VolumeReadBytesPerSecond | VolumeWriteBytesPerSecond`

Required: No

statistic

The statistic of the utilization metric.

The Compute Optimizer API, AWS Command Line Interface (AWS CLI), and SDKs return utilization metrics using only the `Maximum` statistic, which is the highest value observed during the specified period.

The Compute Optimizer console displays graphs for some utilization metrics using the `Average` statistic, which is the value of `Sum` / `SampleCount` during the specified period. For more information, see Viewing resource recommendations in the *AWS Compute Optimizer User Guide*. You can also get averaged utilization metric data for your resources using Amazon CloudWatch. For more information, see the Amazon CloudWatch User Guide.

Type: String

Valid Values: `Maximum | Average`

Required: No

value

The value of the utilization metric.

Type: Double

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 V2
- AWS SDK for Ruby V3

EnrollmentFilter

Describes a filter that returns a more specific list of account enrollment statuses. Use this filter with the GetEnrollmentStatusesForOrganization (p. 41) action.

Contents

name

The name of the filter.

Specify `Status` to return accounts with a specific enrollment status (for example, `Active`).

Type: String

Valid Values: `Status`

Required: No

values

The value of the filter.

The valid values are `Active`, `Inactive`, `Pending`, and `Failed`.

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 V2
- AWS SDK for Ruby V3

ExportDestination

Describes the destination of the recommendations export and metadata files.

Contents

s3

An object that describes the destination Amazon Simple Storage Service (Amazon S3) bucket name and object keys of a recommendations export file, and its associated metadata file.

Type: S3Destination (p. 94) 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 V2
- AWS SDK for Ruby V3

Filter

Describes a filter that returns a more specific list of recommendations. Use this filter with the GetAutoScalingGroupRecommendations (p. 24) and GetEC2InstanceRecommendations (p. 32) actions.

You can use `EBSFilter` with the GetEBSVolumeRecommendations (p. 28) action, `LambdaFunctionRecommendationFilter` with the GetLambdaFunctionRecommendations (p. 44) action, and `JobFilter` with the DescribeRecommendationExportJobs (p. 3) action.

Contents

name

The name of the filter.

Specify `Finding` to return recommendations with a specific finding classification (for example, `Underprovisioned`).

Specify `RecommendationSourceType` to return recommendations of a specific resource type (for example, `Ec2Instance`).

Specify `FindingReasonCodes` to return recommendations with a specific finding reason code (for example, `CPUUnderprovisioned`).

Type: String

Valid Values: `Finding | FindingReasonCodes | RecommendationSourceType`

Required: No

values

The value of the filter.

The valid values for this parameter are as follows, depending on what you specify for the `name` parameter and the resource type that you wish to filter results for:

- Specify `Optimized` or `NotOptimized` if you specify the `name` parameter as `Finding` and you want to filter results for Auto Scaling groups.
- Specify `Underprovisioned`, `Overprovisioned`, or `Optimized` if you specify the `name` parameter as `Finding` and you want to filter results for EC2 instances.
- Specify `Ec2Instance` or `AutoScalingGroup` if you specify the `name` parameter as `RecommendationSourceType`.
- Specify one of the following options if you specify the `name` parameter as `FindingReasonCodes`:
  - **`CPUOverprovisioned`** — The instance's CPU configuration can be sized down while still meeting the performance requirements of your workload.
  - **`CPUUnderprovisioned`** — The instance's CPU configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better CPU performance.
  - **`MemoryOverprovisioned`** — The instance's memory configuration can be sized down while still meeting the performance requirements of your workload.
  - **`MemoryUnderprovisioned`** — The instance's memory configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better memory performance.
  - **`EBSThroughputOverprovisioned`** — The instance's EBS throughput configuration can be sized down while still meeting the performance requirements of your workload.

- **`EBSThroughputUnderprovisioned`** — The instance's EBS throughput configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better EBS throughput performance.
- **`EBSIOPSOverprovisioned`** — The instance's EBS IOPS configuration can be sized down while still meeting the performance requirements of your workload.
- **`EBSIOPSUnderprovisioned`** — The instance's EBS IOPS configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better EBS IOPS performance.
- **`NetworkBandwidthOverprovisioned`** — The instance's network bandwidth configuration can be sized down while still meeting the performance requirements of your workload.
- **`NetworkBandwidthUnderprovisioned`** — The instance's network bandwidth configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better network bandwidth performance. This finding reason happens when the `NetworkIn` or `NetworkOut` performance of an instance is impacted.
- **`NetworkPPSOverprovisioned`** — The instance's network PPS (packets per second) configuration can be sized down while still meeting the performance requirements of your workload.
- **`NetworkPPSUnderprovisioned`** — The instance's network PPS (packets per second) configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better network PPS performance.
- **`DiskIOPSOverprovisioned`** — The instance's disk IOPS configuration can be sized down while still meeting the performance requirements of your workload.
- **`DiskIOPSUnderprovisioned`** — The instance's disk IOPS configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better disk IOPS performance.
- **`DiskThroughputOverprovisioned`** — The instance's disk throughput configuration can be sized down while still meeting the performance requirements of your workload.
- **`DiskThroughputUnderprovisioned`** — The instance's disk throughput configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better disk throughput performance.

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 V2
- AWS SDK for Ruby V3

GetRecommendationError

Describes an error experienced when getting recommendations.

For example, an error is returned if you request recommendations for an unsupported Auto Scaling group, or if you request recommendations for an instance of an unsupported instance family.

Contents

code

The error code.

Type: String

Required: No

identifier

The ID of the error.

Type: String

Required: No

message

The message, or reason, for the error.

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 V2
- AWS SDK for Ruby V3

InstanceRecommendation

Describes an Amazon EC2 instance recommendation.

Contents

accountId

The AWS account ID of the instance.

Type: String

Required: No

currentInstanceType

The instance type of the current instance.

Type: String

Required: No

finding

The finding classification of the instance.

Findings for instances include:

- **`Underprovisioned`** —An instance is considered under-provisioned when at least one specification of your instance, such as CPU, memory, or network, does not meet the performance requirements of your workload. Under-provisioned instances may lead to poor application performance.
- **`Overprovisioned`** —An instance is considered over-provisioned when at least one specification of your instance, such as CPU, memory, or network, can be sized down while still meeting the performance requirements of your workload, and no specification is under-provisioned. Over-provisioned instances may lead to unnecessary infrastructure cost.
- **`Optimized`** —An instance is considered optimized when all specifications of your instance, such as CPU, memory, and network, meet the performance requirements of your workload and is not over provisioned. For optimized resources, AWS Compute Optimizer might recommend a new generation instance type.

Type: String

Valid Values: `Underprovisioned | Overprovisioned | Optimized | NotOptimized`

Required: No

findingReasonCodes

The reason for the finding classification of the instance.

Finding reason codes for instances include:

- **`CPUOverprovisioned`** — The instance's CPU configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the `CPUUtilization` metric of the current instance during the look-back period.
- **`CPUUnderprovisioned`** — The instance's CPU configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better CPU

performance. This is identified by analyzing the `CPUUtilization` metric of the current instance during the look-back period.

- **`MemoryOverprovisioned`** — The instance's memory configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the memory utilization metric of the current instance during the look-back period.
- **`MemoryUnderprovisioned`** — The instance's memory configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better memory performance. This is identified by analyzing the memory utilization metric of the current instance during the look-back period.

  Note
  Memory utilization is analyzed only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling memory utilization with the Amazon CloudWatch Agent in the *AWS Compute Optimizer User Guide*. On Linux instances, Compute Optimizer analyses the `mem_used_percent` metric in the `CWAgent` namespace, or the legacy `MemoryUtilization` metric in the `System/Linux` namespace. On Windows instances, Compute Optimizer analyses the `Memory % Committed Bytes In Use` metric in the `CWAgent` namespace.
- **`EBSThroughputOverprovisioned`** — The instance's EBS throughput configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the `VolumeReadOps` and `VolumeWriteOps` metrics of EBS volumes attached to the current instance during the look-back period.
- **`EBSThroughputUnderprovisioned`** — The instance's EBS throughput configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better EBS throughput performance. This is identified by analyzing the `VolumeReadOps` and `VolumeWriteOps` metrics of EBS volumes attached to the current instance during the look-back period.
- **`EBSIOPSOverprovisioned`** — The instance's EBS IOPS configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the `VolumeReadBytes` and `VolumeWriteBytes` metric of EBS volumes attached to the current instance during the look-back period.
- **`EBSIOPSUnderprovisioned`** — The instance's EBS IOPS configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better EBS IOPS performance. This is identified by analyzing the `VolumeReadBytes` and `VolumeWriteBytes` metric of EBS volumes attached to the current instance during the look-back period.
- **`NetworkBandwidthOverprovisioned`** — The instance's network bandwidth configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the `NetworkIn` and `NetworkOut` metrics of the current instance during the look-back period.
- **`NetworkBandwidthUnderprovisioned`** — The instance's network bandwidth configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better network bandwidth performance. This is identified by analyzing the `NetworkIn` and `NetworkOut` metrics of the current instance during the look-back period. This finding reason happens when the `NetworkIn` or `NetworkOut` performance of an instance is impacted.
- **`NetworkPPSOverprovisioned`** — The instance's network PPS (packets per second) configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the `NetworkPacketsIn` and `NetworkPacketsIn` metrics of the current instance during the look-back period.
- **`NetworkPPSUnderprovisioned`** — The instance's network PPS (packets per second) configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better network PPS performance. This is identified by analyzing the `NetworkPacketsIn` and `NetworkPacketsIn` metrics of the current instance during the look-back period.

- **`DiskIOPSOverprovisioned`** — The instance's disk IOPS configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the `DiskReadOps` and `DiskWriteOps` metrics of the current instance during the look-back period.
- **`DiskIOPSUnderprovisioned`** — The instance's disk IOPS configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better disk IOPS performance. This is identified by analyzing the `DiskReadOps` and `DiskWriteOps` metrics of the current instance during the look-back period.
- **`DiskThroughputOverprovisioned`** — The instance's disk throughput configuration can be sized down while still meeting the performance requirements of your workload. This is identified by analyzing the `DiskReadBytes` and `DiskWriteBytes` metrics of the current instance during the look-back period.
- **`DiskThroughputUnderprovisioned`** — The instance's disk throughput configuration doesn't meet the performance requirements of your workload and there is an alternative instance type that provides better disk throughput performance. This is identified by analyzing the `DiskReadBytes` and `DiskWriteBytes` metrics of the current instance during the look-back period.

  Note
  For more information about instance metrics, see List the available CloudWatch metrics for your instances in the *Amazon Elastic Compute Cloud User Guide*. For more information about EBS volume metrics, see Amazon CloudWatch metrics for Amazon EBS in the *Amazon Elastic Compute Cloud User Guide*.

Type: Array of strings

Valid Values: `CPUOverprovisioned | CPUUnderprovisioned | MemoryOverprovisioned | MemoryUnderprovisioned | EBSThroughputOverprovisioned | EBSThroughputUnderprovisioned | EBSIOPSOverprovisioned | EBSIOPSUnderprovisioned | NetworkBandwidthOverprovisioned | NetworkBandwidthUnderprovisioned | NetworkPPSOverprovisioned | NetworkPPSUnderprovisioned | DiskIOPSOverprovisioned | DiskIOPSUnderprovisioned | DiskThroughputOverprovisioned | DiskThroughputUnderprovisioned`

Required: No

instanceArn

The Amazon Resource Name (ARN) of the current instance.

Type: String

Required: No

instanceName

The name of the current instance.

Type: String

Required: No

lastRefreshTimestamp

The timestamp of when the instance recommendation was last refreshed.

Type: Timestamp

Required: No

lookBackPeriodInDays

The number of days for which utilization metrics were analyzed for the instance.

Type: Double

Required: No

recommendationOptions

An array of objects that describe the recommendation options for the instance.

Type: Array of InstanceRecommendationOption (p. 73) objects

Required: No

recommendationSources

An array of objects that describe the source resource of the recommendation.

Type: Array of RecommendationSource (p. 91) objects

Required: No

utilizationMetrics

An array of objects that describe the utilization metrics of the instance.

Type: Array of UtilizationMetric (p. 97) objects

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 V2
- AWS SDK for Ruby V3

InstanceRecommendationOption

Describes a recommendation option for an Amazon EC2 instance.

Contents

instanceType

The instance type of the instance recommendation.

Type: String

Required: No

performanceRisk

The performance risk of the instance recommendation option.

Performance risk indicates the likelihood of the recommended instance type not meeting the resource needs of your workload. Compute Optimizer calculates an individual performance risk score for each specification of the recommended instance, including CPU, memory, EBS throughput, EBS IOPS, disk throughput, disk IOPS, network throughput, and network PPS. The performance risk of the recommended instance is calculated as the maximum performance risk score across the analyzed resource specifications.

The value ranges from `0` - `4`, with `0` meaning that the recommended resource is predicted to always provide enough hardware capability. The higher the performance risk is, the more likely you should validate whether the recommendation will meet the performance requirements of your workload before migrating your resource.

Type: Double

Valid Range: Minimum value of 0. Maximum value of 4.

Required: No

platformDifferences

Describes the configuration differences between the current instance and the recommended instance type. You should consider the configuration differences before migrating your workloads from the current instance to the recommended instance type. The Change the instance type guide for Linux and Change the instance type guide for Windows provide general guidance for getting started with an instance migration.

Platform differences include:

- **`Hypervisor`** — The hypervisor of the recommended instance type is different than that of the current instance. For example, the recommended instance type uses a Nitro hypervisor and the current instance uses a Xen hypervisor. The differences that you should consider between these hypervisors are covered in the Nitro Hypervisor section of the Amazon EC2 frequently asked questions. For more information, see Instances built on the Nitro System in the *Amazon EC2 User Guide for Linux*, or Instances built on the Nitro System in the *Amazon EC2 User Guide for Windows*.
- **`NetworkInterface`** — The network interface of the recommended instance type is different than that of the current instance. For example, the recommended instance type supports enhanced networking and the current instance might not. To enable enhanced networking for the recommended instance type, you must install the Elastic Network Adapter (ENA) driver or the Intel 82599 Virtual Function driver. For more information, see Networking and storage features and Enhanced networking on Linux in the *Amazon EC2 User Guide for Linux*, or Networking and storage features and Enhanced networking on Windows in the *Amazon EC2 User Guide for Windows*.
- **`StorageInterface`** — The storage interface of the recommended instance type is different than that of the current instance. For example, the recommended instance type uses an NVMe storage

interface and the current instance does not. To access NVMe volumes for the recommended instance type, you will need to install or upgrade the NVMe driver. For more information, see Networking and storage features and Amazon EBS and NVMe on Linux instances in the *Amazon EC2 User Guide for Linux*, or Networking and storage features and Amazon EBS and NVMe on Windows instances in the *Amazon EC2 User Guide for Windows*.

- **`InstanceStoreAvailability`** — The recommended instance type does not support instance store volumes and the current instance does. Before migrating, you might need to back up the data on your instance store volumes if you want to preserve them. For more information, see How do I back up an instance store volume on my Amazon EC2 instance to Amazon EBS? in the *AWS Premium Support Knowledge Base*. For more information, see Networking and storage features and Amazon EC2 instance store in the *Amazon EC2 User Guide for Linux*, or see Networking and storage features and Amazon EC2 instance store in the *Amazon EC2 User Guide for Windows*.
- **`VirtualizationType`** — The recommended instance type uses the hardware virtual machine (HVM) virtualization type and the current instance uses the paravirtual (PV) virtualization type. For more information about the differences between these virtualization types, see Linux AMI virtualization types in the *Amazon EC2 User Guide for Linux*, or Windows AMI virtualization types in the *Amazon EC2 User Guide for Windows*.
- **`Architecture`** — The CPU architecture between the recommended instance type and the current instance is different. For example, the recommended instance type might use an Arm CPU architecture and the current instance type might use a different one, such as x86. Before migrating, you should consider recompiling the software on your instance for the new architecture. Alternatively, you might switch to an Amazon Machine Image (AMI) that supports the new architecture. For more information about the CPU architecture for each instance type, see Amazon EC2 Instance Types.

Type: Array of strings

Valid Values: `Hypervisor | NetworkInterface | StorageInterface | InstanceStoreAvailability | VirtualizationType | Architecture`

Required: No

projectedUtilizationMetrics

An array of objects that describe the projected utilization metrics of the instance recommendation option.

Note
The `Cpu` and `Memory` metrics are the only projected utilization metrics returned. Additionally, the `Memory` metric is returned only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling Memory Utilization with the CloudWatch Agent.

Type: Array of UtilizationMetric (p. 97) objects

Required: No

rank

The rank of the instance recommendation option.

The top recommendation option is ranked as `1`.

Type: Integer

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 V2
- AWS SDK for Ruby V3

JobFilter

Describes a filter that returns a more specific list of recommendation export jobs. Use this filter with the DescribeRecommendationExportJobs (p. 3) action.

You can use `EBSFilter` with the GetEBSVolumeRecommendations (p. 28) action, `LambdaFunctionRecommendationFilter` with the GetLambdaFunctionRecommendations (p. 44) action, and `Filter` with the GetAutoScalingGroupRecommendations (p. 24) and GetEC2InstanceRecommendations (p. 32) actions.

Contents

name

The name of the filter.

Specify `ResourceType` to return export jobs of a specific resource type (for example, `Ec2Instance`).

Specify `JobStatus` to return export jobs with a specific status (e.g, `Complete`).

Type: String

Valid Values: `ResourceType | JobStatus`

Required: No

values

The value of the filter.

The valid values for this parameter are as follows, depending on what you specify for the `name` parameter:

- Specify `Ec2Instance` or `AutoScalingGroup` if you specify the `name` parameter as `ResourceType`. There is no filter for EBS volumes because volume recommendations cannot be exported at this time.
- Specify `Queued`, `InProgress`, `Complete`, or `Failed` if you specify the `name` parameter as `JobStatus`.

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 V2
- AWS SDK for Ruby V3

LambdaFunctionMemoryProjectedMetric

Describes a projected utilization metric of an AWS Lambda function recommendation option.

Contents

name

The name of the projected utilization metric.

Type: String

Valid Values: `Duration`

Required: No

statistic

The statistic of the projected utilization metric.

Type: String

Valid Values: `LowerBound | UpperBound | Expected`

Required: No

value

The values of the projected utilization metrics.

Type: Double

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 V2
- AWS SDK for Ruby V3

LambdaFunctionMemoryRecommendationOption

Describes a recommendation option for an AWS Lambda function.

Contents

memorySize

The memory size, in MB, of the function recommendation option.

Type: Integer

Required: No

projectedUtilizationMetrics

An array of objects that describe the projected utilization metrics of the function recommendation option.

Type: Array of LambdaFunctionMemoryProjectedMetric (p. 77) objects

Required: No

rank

The rank of the function recommendation option.

The top recommendation option is ranked as `1`.

Type: Integer

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 V2
- AWS SDK for Ruby V3

LambdaFunctionRecommendation

Describes an AWS Lambda function recommendation.

Contents

accountId

The AWS account ID of the function.

Type: String

Required: No

currentMemorySize

The amount of memory, in MB, that's allocated to the current function.

Type: Integer

Required: No

finding

The finding classification of the function.

Findings for functions include:

- **`Optimized`** — The function is correctly provisioned to run your workload based on its current configuration and its utilization history. This finding classification does not include finding reason codes.
- **`NotOptimized`** — The function is performing at a higher level (over-provisioned) or at a lower level (under-provisioned) than required for your workload because its current configuration is not optimal. Over-provisioned resources might lead to unnecessary infrastructure cost, and under-provisioned resources might lead to poor application performance. This finding classification can include the `MemoryUnderprovisioned` and `MemoryUnderprovisioned` finding reason codes.
- **`Unavailable`** — Compute Optimizer was unable to generate a recommendation for the function. This could be because the function has not accumulated sufficient metric data, or the function does not qualify for a recommendation. This finding classification can include the `InsufficientData` and `Inconclusive` finding reason codes.

  Note
  Functions with a finding of unavailable are not returned unless you specify the `filter` parameter with a value of `Unavailable` in your `GetLambdaFunctionRecommendations` request.

Type: String

Valid Values: `Optimized | NotOptimized | Unavailable`

Required: No

findingReasonCodes

The reason for the finding classification of the function.

Note
Functions that have a finding classification of `Optimized` don't have a finding reason code.

Finding reason codes for functions include:

- **`MemoryOverprovisioned`** — The function is over-provisioned when its memory configuration can be sized down while still meeting the performance requirements of your workload. An over-provisioned function might lead to unnecessary infrastructure cost. This finding reason code is part of the `NotOptimized` finding classification.
- **`MemoryUnderprovisioned`** — The function is under-provisioned when its memory configuration doesn't meet the performance requirements of the workload. An under-provisioned function might lead to poor application performance. This finding reason code is part of the `NotOptimized` finding classification.
- **`InsufficientData`** — The function does not have sufficient metric data for Compute Optimizer to generate a recommendation. For more information, see the Supported resources and requirements in the *AWS Compute Optimizer User Guide*. This finding reason code is part of the `Unavailable` finding classification.
- **`Inconclusive`** — The function does not qualify for a recommendation because Compute Optimizer cannot generate a recommendation with a high degree of confidence. This finding reason code is part of the `Unavailable` finding classification.

Type: Array of strings

Valid Values: `MemoryOverprovisioned | MemoryUnderprovisioned | InsufficientData | Inconclusive`

Required: No

functionArn

The Amazon Resource Name (ARN) of the current function.

Type: String

Required: No

functionVersion

The version number of the current function.

Type: String

Required: No

lastRefreshTimestamp

The timestamp of when the function recommendation was last refreshed.

Type: Timestamp

Required: No

lookbackPeriodInDays

The number of days for which utilization metrics were analyzed for the function.

Type: Double

Required: No

memorySizeRecommendationOptions

An array of objects that describe the memory configuration recommendation options for the function.

Type: Array of LambdaFunctionMemoryRecommendationOption (p. 78) objects

Required: No

numberOfInvocations

The number of times your function code was applied during the look-back period.

Type: Long

Required: No

utilizationMetrics

An array of objects that describe the utilization metrics of the function.

Type: Array of LambdaFunctionUtilizationMetric (p. 83) objects

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 V2
- AWS SDK for Ruby V3

LambdaFunctionRecommendationFilter

Describes a filter that returns a more specific list of AWS Lambda function recommendations. Use this filter with the GetLambdaFunctionRecommendations (p. 44) action.

You can use `EBSFilter` with the GetEBSVolumeRecommendations (p. 28) action, `JobFilter` with the DescribeRecommendationExportJobs (p. 3) action, and `Filter` with the GetAutoScalingGroupRecommendations (p. 24) and GetEC2InstanceRecommendations (p. 32) actions.

Contents

name

The name of the filter.

Specify `Finding` to return recommendations with a specific finding classification (for example, `NotOptimized`).

Specify `FindingReasonCode` to return recommendations with a specific finding reason code (for example, `MemoryUnderprovisioned`).

Type: String

Valid Values: `Finding | FindingReasonCode`

Required: No

values

The value of the filter.

The valid values for this parameter are as follows, depending on what you specify for the `name` parameter:

- Specify `Optimized`, `NotOptimized`, or `Unavailable` if you specify the `name` parameter as `Finding`.
- Specify `MemoryOverprovisioned`, `MemoryUnderprovisioned`, `InsufficientData`, or `Inconclusive` if you specify the `name` parameter as `FindingReasonCode`.

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 V2
- AWS SDK for Ruby V3

LambdaFunctionUtilizationMetric

Describes a utilization metric of an AWS Lambda function.

Contents

name

The name of the utilization metric.

The following utilization metrics are available:

- `Duration` - The amount of time that your function code spends processing an event.
- `Memory` - The amount of memory used per invocation.

Type: String

Valid Values: `Duration | Memory`

Required: No

statistic

The statistic of the utilization metric.

The Compute Optimizer API, AWS Command Line Interface (AWS CLI), and SDKs return utilization metrics using only the `Maximum` statistic, which is the highest value observed during the specified period.

The Compute Optimizer console displays graphs for some utilization metrics using the `Average` statistic, which is the value of `Sum` / `SampleCount` during the specified period. For more information, see Viewing resource recommendations in the *AWS Compute Optimizer User Guide*. You can also get averaged utilization metric data for your resources using Amazon CloudWatch. For more information, see the Amazon CloudWatch User Guide.

Type: String

Valid Values: `Maximum | Average`

Required: No

value

The value of the utilization metric.

Type: Double

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 V2
- AWS SDK for Ruby V3

ProjectedMetric

Describes a projected utilization metric of a recommendation option, such as an Amazon EC2 instance. This represents the projected utilization of a recommendation option had you used that resource during the analyzed period.

Compare the utilization metric data of your resource against its projected utilization metric data to determine the performance difference between your current resource and the recommended option.

Note
The `Cpu` and `Memory` metrics are the only projected utilization metrics returned when you run the GetEC2RecommendationProjectedMetrics (p. 36) action. Additionally, the `Memory` metric is returned only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling Memory Utilization with the CloudWatch Agent.

Contents

name

The name of the projected utilization metric.

The following projected utilization metrics are returned:

- `Cpu` - The projected percentage of allocated EC2 compute units that would be in use on the recommendation option had you used that resource during the analyzed period. This metric identifies the processing power required to run an application on the recommendation option.

  Depending on the instance type, tools in your operating system can show a lower percentage than CloudWatch when the instance is not allocated a full processor core.

  Units: Percent
- `Memory` - The percentage of memory that would be in use on the recommendation option had you used that resource during the analyzed period. This metric identifies the amount of memory required to run an application on the recommendation option.

  Units: Percent

  Note
  The `Memory` metric is returned only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling Memory Utilization with the CloudWatch Agent.

Type: String

Valid Values: `Cpu | Memory | EBS_READ_OPS_PER_SECOND | EBS_WRITE_OPS_PER_SECOND | EBS_READ_BYTES_PER_SECOND | EBS_WRITE_BYTES_PER_SECOND | DISK_READ_OPS_PER_SECOND | DISK_WRITE_OPS_PER_SECOND | DISK_READ_BYTES_PER_SECOND | DISK_WRITE_BYTES_PER_SECOND | NETWORK_IN_BYTES_PER_SECOND | NETWORK_OUT_BYTES_PER_SECOND | NETWORK_PACKETS_IN_PER_SECOND | NETWORK_PACKETS_OUT_PER_SECOND`

Required: No

timestamps

The timestamps of the projected utilization metric.

Type: Array of timestamps

Required: No

values

The values of the projected utilization metrics.

Type: Array of doubles

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 V2
- AWS SDK for Ruby V3

ReasonCodeSummary

A summary of a finding reason code.

Contents

name

The name of the finding reason code.

Type: String

Valid Values: `MemoryOverprovisioned | MemoryUnderprovisioned`

Required: No

value

The value of the finding reason code summary.

Type: Double

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 V2
- AWS SDK for Ruby V3

RecommendationExportJob

Describes a recommendation export job.

Use the DescribeRecommendationExportJobs (p. 3) action to view your recommendation export jobs.

Use the ExportAutoScalingGroupRecommendations (p. 6) or ExportEC2InstanceRecommendations (p. 15) actions to request an export of your recommendations.

Contents

creationTimestamp

The timestamp of when the export job was created.

Type: Timestamp

Required: No

destination

An object that describes the destination of the export file.

Type: ExportDestination (p. 65) object

Required: No

failureReason

The reason for an export job failure.

Type: String

Required: No

jobId

The identification number of the export job.

Type: String

Required: No

lastUpdatedTimestamp

The timestamp of when the export job was last updated.

Type: Timestamp

Required: No

resourceType

The resource type of the exported recommendations.

Type: String

Valid Values: `Ec2Instance | AutoScalingGroup | EbsVolume | LambdaFunction`

Required: No

status

The status of the export job.

Type: String

Valid Values: `Queued | InProgress | Complete | Failed`

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 V2
- AWS SDK for Ruby V3

RecommendationPreferences

Describes preferences for recommendations.

Contents

cpuVendorArchitectures

Specifies the CPU vendor and architecture for Amazon EC2 instance and Auto Scaling group recommendations.

For example, when you specify `AWS_ARM64` with:

- A GetEC2InstanceRecommendations (p. 32) or GetAutoScalingGroupRecommendations (p. 24) request, Compute Optimizer returns recommendations that consist of Graviton2 instance types only.
- A GetEC2RecommendationProjectedMetrics (p. 36) request, Compute Optimizer returns projected utilization metrics for Graviton2 instance type recommendations only.
- A ExportEC2InstanceRecommendations (p. 15) or ExportAutoScalingGroupRecommendations (p. 6) request, Compute Optimizer exports recommendations that consist of Graviton2 instance types only.

Type: Array of strings

Valid Values: `AWS_ARM64 | CURRENT`

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 V2
- AWS SDK for Ruby V3

RecommendationSource

Describes the source of a recommendation, such as an Amazon EC2 instance or Auto Scaling group.

Contents

recommendationSourceArn

The Amazon Resource Name (ARN) of the recommendation source.

Type: String

Required: No

recommendationSourceType

The resource type of the recommendation source.

Type: String

Valid Values: `Ec2Instance | AutoScalingGroup | EbsVolume | LambdaFunction`

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 V2
- AWS SDK for Ruby V3

RecommendationSummary

A summary of a recommendation.

Contents

accountId

The AWS account ID of the recommendation summary.

Type: String

Required: No

recommendationResourceType

The resource type of the recommendation.

Type: String

Valid Values: `Ec2Instance | AutoScalingGroup | EbsVolume | LambdaFunction`

Required: No

summaries

An array of objects that describe a recommendation summary.

Type: Array of Summary (p. 96) objects

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 V2
- AWS SDK for Ruby V3

RecommendedOptionProjectedMetric

Describes a projected utilization metric of a recommendation option.

Note
The `Cpu` and `Memory` metrics are the only projected utilization metrics returned when you run the GetEC2RecommendationProjectedMetrics (p. 36) action. Additionally, the `Memory` metric is returned only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling Memory Utilization with the CloudWatch Agent.

Contents

projectedMetrics

An array of objects that describe a projected utilization metric.

Type: Array of ProjectedMetric (p. 85) objects

Required: No

rank

The rank of the recommendation option projected metric.

The top recommendation option is ranked as `1`.

The projected metric rank correlates to the recommendation option rank. For example, the projected metric ranked as `1` is related to the recommendation option that is also ranked as `1` in the same response.

Type: Integer

Required: No

recommendedInstanceType

The recommended instance type.

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 V2
- AWS SDK for Ruby V3

S3Destination

Describes the destination Amazon Simple Storage Service (Amazon S3) bucket name and object keys of a recommendations export file, and its associated metadata file.

Contents

bucket

The name of the Amazon S3 bucket used as the destination of an export file.

Type: String

Required: No

key

The Amazon S3 bucket key of an export file.

The key uniquely identifies the object, or export file, in the S3 bucket.

Type: String

Required: No

metadataKey

The Amazon S3 bucket key of a metadata file.

The key uniquely identifies the object, or metadata file, in the S3 bucket.

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 V2
- AWS SDK for Ruby V3

S3DestinationConfig

Describes the destination Amazon Simple Storage Service (Amazon S3) bucket name and key prefix for a recommendations export job.

You must create the destination Amazon S3 bucket for your recommendations export before you create the export job. Compute Optimizer does not create the S3 bucket for you. After you create the S3 bucket, ensure that it has the required permission policy to allow Compute Optimizer to write the export file to it. If you plan to specify an object prefix when you create the export job, you must include the object prefix in the policy that you add to the S3 bucket. For more information, see Amazon S3 Bucket Policy for Compute Optimizer in the *Compute Optimizer User Guide*.

Contents

bucket

The name of the Amazon S3 bucket to use as the destination for an export job.

Type: String

Required: No

keyPrefix

The Amazon S3 bucket prefix for an export job.

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 V2
- AWS SDK for Ruby V3

Summary

The summary of a recommendation.

Contents

name

The finding classification of the recommendation.

Type: String

Valid Values: `Underprovisioned | Overprovisioned | Optimized | NotOptimized`

Required: No

reasonCodeSummaries

An array of objects that summarize a finding reason code.

Type: Array of ReasonCodeSummary (p. 87) objects

Required: No

value

The value of the recommendation summary.

Type: Double

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 V2
- AWS SDK for Ruby V3

UtilizationMetric

Describes a utilization metric of a resource, such as an Amazon EC2 instance.

Compare the utilization metric data of your resource against its projected utilization metric data to determine the performance difference between your current resource and the recommended option.

Contents

name

The name of the utilization metric.

The following utilization metrics are available:

- `Cpu` - The percentage of allocated EC2 compute units that are currently in use on the instance. This metric identifies the processing power required to run an application on the instance.

  Depending on the instance type, tools in your operating system can show a lower percentage than CloudWatch when the instance is not allocated a full processor core.

  Units: Percent

- `Memory` - The percentage of memory that is currently in use on the instance. This metric identifies the amount of memory required to run an application on the instance.

  Units: Percent

  Note
  The `Memory` metric is returned only for resources that have the unified CloudWatch agent installed on them. For more information, see Enabling Memory Utilization with the CloudWatch Agent.

- `EBS_READ_OPS_PER_SECOND` - The completed read operations from all EBS volumes attached to the instance in a specified period of time.

  Unit: Count

- `EBS_WRITE_OPS_PER_SECOND` - The completed write operations to all EBS volumes attached to the instance in a specified period of time.

  Unit: Count

- `EBS_READ_BYTES_PER_SECOND` - The bytes read from all EBS volumes attached to the instance in a specified period of time.

  Unit: Bytes

- `EBS_WRITE_BYTES_PER_SECOND` - The bytes written to all EBS volumes attached to the instance in a specified period of time.

  Unit: Bytes

- `DISK_READ_OPS_PER_SECOND` - The completed read operations from all instance store volumes available to the instance in a specified period of time.

  If there are no instance store volumes, either the value is `0` or the metric is not reported.

- `DISK_WRITE_OPS_PER_SECOND` - The completed write operations from all instance store volumes available to the instance in a specified period of time.

  If there are no instance store volumes, either the value is `0` or the metric is not reported.

- `DISK_READ_BYTES_PER_SECOND` - The bytes read from all instance store volumes available to the instance. This metric is used to determine the volume of the data the application reads from the disk of the instance. This can be used to determine the speed of the application.

  If there are no instance store volumes, either the value is `0` or the metric is not reported.
- `DISK_WRITE_BYTES_PER_SECOND` - The bytes written to all instance store volumes available to the instance. This metric is used to determine the volume of the data the application writes onto the disk of the instance. This can be used to determine the speed of the application.

  If there are no instance store volumes, either the value is `0` or the metric is not reported.
- `NETWORK_IN_BYTES_PER_SECOND` - The number of bytes received by the instance on all network interfaces. This metric identifies the volume of incoming network traffic to a single instance.
- `NETWORK_OUT_BYTES_PER_SECOND` - The number of bytes sent out by the instance on all network interfaces. This metric identifies the volume of outgoing network traffic from a single instance.
- `NETWORK_PACKETS_IN_PER_SECOND` - The number of packets received by the instance on all network interfaces. This metric identifies the volume of incoming traffic in terms of the number of packets on a single instance.
- `NETWORK_PACKETS_OUT_PER_SECOND` - The number of packets sent out by the instance on all network interfaces. This metric identifies the volume of outgoing traffic in terms of the number of packets on a single instance.

Type: String

Valid Values: `Cpu | Memory | EBS_READ_OPS_PER_SECOND | EBS_WRITE_OPS_PER_SECOND | EBS_READ_BYTES_PER_SECOND | EBS_WRITE_BYTES_PER_SECOND | DISK_READ_OPS_PER_SECOND | DISK_WRITE_OPS_PER_SECOND | DISK_READ_BYTES_PER_SECOND | DISK_WRITE_BYTES_PER_SECOND | NETWORK_IN_BYTES_PER_SECOND | NETWORK_OUT_BYTES_PER_SECOND | NETWORK_PACKETS_IN_PER_SECOND | NETWORK_PACKETS_OUT_PER_SECOND`

Required: No

statistic

The statistic of the utilization metric.

The Compute Optimizer API, AWS Command Line Interface (AWS CLI), and SDKs return utilization metrics using only the `Maximum` statistic, which is the highest value observed during the specified period.

The Compute Optimizer console displays graphs for some utilization metrics using the `Average` statistic, which is the value of `Sum` / `SampleCount` during the specified period. For more information, see Viewing resource recommendations in the *AWS Compute Optimizer User Guide*. You can also get averaged utilization metric data for your resources using Amazon CloudWatch. For more information, see the Amazon CloudWatch User Guide.

Type: String

Valid Values: `Maximum | Average`

Required: No

value

The value of the utilization metric.

Type: Double

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 V2
- AWS SDK for Ruby V3

VolumeConfiguration

Describes the configuration of an Amazon Elastic Block Store (Amazon EBS) volume.

Contents

volumeBaselineIOPS

The baseline IOPS of the volume.

Type: Integer

Required: No

volumeBaselineThroughput

The baseline throughput of the volume.

Type: Integer

Required: No

volumeBurstIOPS

The burst IOPS of the volume.

Type: Integer

Required: No

volumeBurstThroughput

The burst throughput of the volume.

Type: Integer

Required: No

volumeSize

The size of the volume, in GiB.

Type: Integer

Required: No

volumeType

The volume type.

This can be `gp2` for General Purpose SSD, `io1` or `io2` for Provisioned IOPS SSD, `st1` for Throughput Optimized HDD, `sc1` for Cold HDD, or `standard` for Magnetic volumes.

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 V2
- AWS SDK for Ruby V3

VolumeRecommendation

Describes an Amazon Elastic Block Store (Amazon EBS) volume recommendation.

Contents

accountId

The AWS account ID of the volume.

Type: String

Required: No

currentConfiguration

An array of objects that describe the current configuration of the volume.

Type: VolumeConfiguration (p. 100) object

Required: No

finding

The finding classification of the volume.

Findings for volumes include:

- **`NotOptimized`** —A volume is considered not optimized when AWS Compute Optimizer identifies a recommendation that can provide better performance for your workload.
- **`Optimized`** —An volume is considered optimized when Compute Optimizer determines that the volume is correctly provisioned to run your workload based on the chosen volume type. For optimized resources, Compute Optimizer might recommend a new generation volume type.

Type: String

Valid Values: `Optimized | NotOptimized`

Required: No

lastRefreshTimestamp

The timestamp of when the volume recommendation was last refreshed.

Type: Timestamp

Required: No

lookBackPeriodInDays

The number of days for which utilization metrics were analyzed for the volume.

Type: Double

Required: No

utilizationMetrics

An array of objects that describe the utilization metrics of the volume.

Type: Array of EBSUtilizationMetric (p. 62) objects

Required: No

volumeArn

The Amazon Resource Name (ARN) of the current volume.

Type: String

Required: No

volumeRecommendationOptions

An array of objects that describe the recommendation options for the volume.

Type: Array of VolumeRecommendationOption (p. 104) objects

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 V2
- AWS SDK for Ruby V3

VolumeRecommendationOption

Describes a recommendation option for an Amazon Elastic Block Store (Amazon EBS) instance.

Contents

configuration

An array of objects that describe a volume configuration.

Type: VolumeConfiguration (p. 100) object

Required: No

performanceRisk

The performance risk of the volume recommendation option.

Performance risk is the likelihood of the recommended volume type meeting the performance requirement of your workload.

The value ranges from `0` - `4`, with `0` meaning that the recommended resource is predicted to always provide enough hardware capability. The higher the performance risk is, the more likely you should validate whether the recommendation will meet the performance requirements of your workload before migrating your resource.

Type: Double

Valid Range: Minimum value of 0. Maximum value of 4.

Required: No

rank

The rank of the volume recommendation option.

The top recommendation option is ranked as `1`.

Type: Integer

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 V2
- AWS SDK for Ruby V3

Common Parameters

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

NotAuthorized

You do not have permission to perform this action.

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