
Amazon CloudWatch

API Reference

API Version 2010-08-01



Amazon CloudWatch: API Reference

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Welcome

This is the *Amazon CloudWatch API Reference*. This guide provides detailed information about Amazon CloudWatch actions, data types, parameters, and errors. For detailed information about Amazon CloudWatch features and their associated API calls, go to the [Amazon CloudWatch Developer Guide](#).

Amazon CloudWatch is a web service that enables you to publish, monitor, and manage various metrics, as well as configure alarm actions based on data from metrics. For more information about this product go to <http://aws.amazon.com/cloudwatch>.

For information about the namespace, metric names, and dimensions that other Amazon Web Services products use to send metrics to Cloudwatch, go to [Amazon CloudWatch Metrics, Namespaces, and Dimensions Reference](#) in the *Amazon CloudWatch Developer Guide*.

Use the following links to get started using the *Amazon CloudWatch API Reference*:

- [Actions](#): An alphabetical list of all Amazon CloudWatch actions.
- [Data Types](#): An alphabetical list of all Amazon CloudWatch data types.
- [Common Parameters](#): Parameters that all Query actions can use.
- [Common Errors](#): Client and server errors that all actions can return.
- [Regions and Endpoints](#): Itemized regions and endpoints for all AWS products.
- [WSDL Location](#): <http://monitoring.amazonaws.com/doc/2010-08-01/CloudWatch.wsdl>

In addition to using the Amazon CloudWatch API, you can also use the following SDKs and third-party libraries to access Amazon CloudWatch programmatically.

- [AWS SDK for Java Documentation](#)
- [AWS SDK for .NET Documentation](#)
- [AWS SDK for PHP Documentation](#)
- [AWS SDK for Ruby Documentation](#)

Developers in the AWS developer community also provide their own libraries, which you can find at the following AWS developer centers:

- [AWS Java Developer Center](#)
- [AWS PHP Developer Center](#)
- [AWS Python Developer Center](#)
- [AWS Ruby Developer Center](#)

- [AWS Windows and .NET Developer Center](#)

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Actions

The actions described in this guide are called using the AWS Query protocol.

The following actions are supported:

- [DeleteAlarms](#) (p. 4)
- [DescribeAlarmHistory](#) (p. 5)
- [DescribeAlarms](#) (p. 7)
- [DescribeAlarmsForMetric](#) (p. 9)
- [DisableAlarmActions](#) (p. 11)
- [EnableAlarmActions](#) (p. 12)
- [GetMetricStatistics](#) (p. 13)
- [ListMetrics](#) (p. 16)
- [PutMetricAlarm](#) (p. 18)
- [PutMetricData](#) (p. 21)
- [SetAlarmState](#) (p. 24)

DeleteAlarms

Description

Deletes all specified alarms. In the event of an error, no alarms are deleted.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>AlarmNames.member.N</i>	A list of alarms to be deleted. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 100 item(s) in the list.	Yes

Errors

For information about the common errors that all actions use, see [Common Errors \(p. 37\)](#).

Error	Description	HTTP Status Code
ResourceNotFound	The named resource does not exist.	404

DescribeAlarmHistory

Description

Retrieves history for the specified alarm. Filter alarms by date range or item type. If an alarm name is not specified, Amazon CloudWatch returns histories for all of the owner's alarms.

Note

Amazon CloudWatch retains the history of an alarm for two weeks, whether or not you delete the alarm.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>AlarmName</i>	The name of the alarm. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	No
<i>EndDate</i>	The ending date to retrieve alarm history. Type: DateTime	No
<i>HistoryItemType</i>	The type of alarm histories to retrieve. Type: String Valid Values: ConfigurationUpdate StateUpdate Action	No
<i>MaxRecords</i>	The maximum number of alarm history records to retrieve. Type: Integer	No
<i>NextToken</i>	The token returned by a previous call to indicate that there is more data available. Type: String	No
<i>StartDate</i>	The starting date to retrieve alarm history. Type: DateTime	No

Response Elements

The following elements come wrapped in a `DescribeAlarmHistoryResult` structure.

Name	Description
<code>AlarmHistoryItems</code>	A list of alarm histories in JSON format. Type: AlarmHistoryItem (p. 25) list
<code>NextToken</code>	A string that marks the start of the next batch of returned results. Type: String

Errors

For information about the common errors that all actions use, see [Common Errors \(p. 37\)](#).

Error	Description	HTTP Status Code
InvalidNextToken	The next token specified is invalid.	400

DescribeAlarms

Description

Retrieves alarms with the specified names. If no name is specified, all alarms for the user are returned. Alarms can be retrieved by using only a prefix for the alarm name, the alarm state, or a prefix for any action.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>ActionPrefix</i>	The action name prefix. Type: String Length constraints: Minimum length of 1. Maximum length of 1024.	No
<i>AlarmNamePrefix</i>	The alarm name prefix. <code>AlarmNames</code> cannot be specified if this parameter is specified. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	No
<i>AlarmNames.member.N</i>	A list of alarm names to retrieve information for. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 100 item(s) in the list.	No
<i>MaxRecords</i>	The maximum number of alarm descriptions to retrieve. Type: Integer	No
<i>NextToken</i>	The token returned by a previous call to indicate that there is more data available. Type: String	No
<i>StateValue</i>	The state value to be used in matching alarms. Type: String Valid Values: OK ALARM INSUFFICIENT_DATA	No

Response Elements

The following elements come wrapped in a `DescribeAlarmsResult` structure.

Name	Description
<i>MetricAlarms</i>	A list of information for the specified alarms. Type: MetricAlarm (p. 30) list
<i>NextToken</i>	A string that marks the start of the next batch of returned results. Type: String

Errors

For information about the common errors that all actions use, see [Common Errors \(p. 37\)](#).

Error	Description	HTTP Status Code
InvalidNextToken	The next token specified is invalid.	400

DescribeAlarmsForMetric

Description

Retrieves all alarms for a single metric. Specify a statistic, period, or unit to filter the set of alarms further.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>Dimensions.member.N</i>	The list of dimensions associated with the metric. Type: Dimension (p. 28) list Length constraints: Minimum of 0 item(s) in the list. Maximum of 10 item(s) in the list.	No
<i>MetricName</i>	The name of the metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes
<i>Namespace</i>	The namespace of the metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes
<i>Period</i>	The period in seconds over which the statistic is applied. Type: Integer	No
<i>Statistic</i>	The statistic for the metric. Type: String Valid Values: SampleCount Average Sum Minimum Maximum	No
<i>Unit</i>	The unit for the metric. Type: String Valid Values: Seconds Microseconds Milliseconds Bytes Kilobytes Megabytes Gigabytes Terabytes Bits Kilobits Megabits Gigabits Terabits Percent Count Bytes/Second Kilobytes/Second Megabytes/Second Gigabytes/Second Terabytes/Second Bits/Second Kilobits/Second Megabits/Second Gigabits/Second Terabits/Second Count/Second None	No

Response Elements

The following elements come wrapped in a `DescribeAlarmsForMetricResult` structure.

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Response Elements

Name	Description
MetricAlarms	A list of information for each alarm with the specified metric. Type: MetricAlarm (p. 30) list

DisableAlarmActions

Description

Disables actions for the specified alarms. When an alarm's actions are disabled the alarm's state may change, but none of the alarm's actions will execute.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>AlarmNames.member.N</i>	The names of the alarms to disable actions for. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 100 item(s) in the list.	Yes

EnableAlarmActions

Description

Enables actions for the specified alarms.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>AlarmNames.member.N</i>	The names of the alarms to enable actions for. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 100 item(s) in the list.	Yes

GetMetricStatistics

Description

Gets statistics for the specified metric.

Note

The maximum number of data points returned from a single `GetMetricStatistics` request is 1,440. If a request is made that generates more than 1,440 data points, Amazon CloudWatch returns an error. In such a case, alter the request by narrowing the specified time range or increasing the specified period. Alternatively, make multiple requests across adjacent time ranges.

Amazon CloudWatch aggregates data points based on the length of the `period` that you specify. For example, if you request statistics with a one-minute granularity, Amazon CloudWatch aggregates data points with time stamps that fall within the same one-minute period. In such a case, the data points queried can greatly outnumber the data points returned.

Note

The maximum number of data points that can be queried is 50,850; whereas the maximum number of data points returned is 1,440.

The following examples show various statistics allowed by the data point query maximum of 50,850 when you call `GetMetricStatistics` on Amazon EC2 instances with detailed (one-minute) monitoring enabled:

- Statistics for up to 400 instances for a span of one hour
- Statistics for up to 35 instances over a span of 24 hours
- Statistics for up to 2 instances over a span of 2 weeks

For information about the namespace, metric names, and dimensions that other Amazon Web Services products use to send metrics to Cloudwatch, go to [Amazon CloudWatch Metrics, Namespaces, and Dimensions Reference](#) in the *Amazon CloudWatch Developer Guide*.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<code>Dimensions.member.N</code>	A list of dimensions describing qualities of the metric. Type: Dimension (p. 28) list Length constraints: Minimum of 0 item(s) in the list. Maximum of 10 item(s) in the list.	No
<code>EndTime</code>	The time stamp to use for determining the last datapoint to return. The value specified is exclusive; results will include datapoints up to the time stamp specified. Type: <code>DateTime</code>	Yes
<code>MetricName</code>	The name of the metric, with or without spaces. Type: <code>String</code> Length constraints: Minimum length of 1. Maximum length of 255.	Yes

Name	Description	Required
<i>Namespace</i>	The namespace of the metric, with or without spaces. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes
<i>Period</i>	The granularity, in seconds, of the returned datapoints. <i>Period</i> must be at least 60 seconds and must be a multiple of 60. The default value is 60. Type: Integer	Yes
<i>StartTime</i>	The time stamp to use for determining the first datapoint to return. The value specified is inclusive; results include datapoints with the time stamp specified. Note The specified start time is rounded down to the nearest value. Datapoints are returned for start times up to two weeks in the past. Specified start times that are more than two weeks in the past will not return datapoints for metrics that are older than two weeks. Type: DateTime	Yes
<i>Statistics.member.N</i>	The metric statistics to return. For information about specific statistics returned by <code>GetMetricStatistics</code> , go to Statistics in the <i>Amazon CloudWatch Developer Guide</i> . Valid Values: Average Sum SampleCount Maximum Minimum Type: String list Length constraints: Minimum of 1 item(s) in the list. Maximum of 5 item(s) in the list.	Yes
<i>Unit</i>	The unit for the metric. Type: String Valid Values: Seconds Microseconds Milliseconds Bytes Kilobytes Megabytes Gigabytes Terabytes Bits Kilobits Megabits Gigabits Terabits Percent Count Bytes/Second Kilobytes/Second Megabytes/Second Gigabytes/Second Terabytes/Second Bits/Second Kilobits/Second Megabits/Second Gigabits/Second Terabits/Second Count/Second None	Yes

Response Elements

The following elements come wrapped in a `GetMetricStatisticsResult` structure.

Name	Description
Datapoints	The datapoints for the specified metric. Type: Datapoint (p. 26) list
Label	A label describing the specified metric. Type: String

Errors

For information about the common errors that all actions use, see [Common Errors \(p. 37\)](#).

Error	Description	HTTP Status Code
InternalServerError	Indicates that the request processing has failed due to some unknown error, exception, or failure.	500
InvalidParameterCombination	Parameters that must not be used together were used together.	400
InvalidParameterValue	Bad or out-of-range value was supplied for the input parameter.	400
MissingRequiredParameter	An input parameter that is mandatory for processing the request is not supplied.	400

ListMetrics

Description

Returns a list of valid metrics stored for the AWS account owner. Returned metrics can be used with [GetMetricStatistics](#) (p. 13) to obtain statistical data for a given metric.

Note

Up to 500 results are returned for any one call. To retrieve further results, use returned `NextToken` values with subsequent `ListMetrics` operations.

Note

If you create a metric with the [PutMetricData](#) (p. 21) action, allow up to fifteen minutes for the metric to appear in calls to the `ListMetrics` action. Statistics about the metric, however, are available sooner using [GetMetricStatistics](#) (p. 13).

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters](#) (p. 35).

Name	Description	Required
<i>Dimensions.member.N</i>	A list of dimensions to filter against. Type: DimensionFilter (p. 28) list Length constraints: Minimum of 0 item(s) in the list. Maximum of 10 item(s) in the list.	No
<i>MetricName</i>	The name of the metric to filter against. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	No
<i>Namespace</i>	The namespace to filter against. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	No
<i>NextToken</i>	The token returned by a previous call to indicate that there is more data available. Type: String	No

Response Elements

The following elements come wrapped in a `ListMetricsResult` structure.

Name	Description
<i>Metrics</i>	A list of metrics used to generate statistics for an AWS account. Type: Metric (p. 30) list
<i>NextToken</i>	A string that marks the start of the next batch of returned results. Type: String

Errors

For information about the common errors that all actions use, see [Common Errors \(p. 37\)](#).

Error	Description	HTTP Status Code
InternalServerError	Indicates that the request processing has failed due to some unknown error, exception, or failure.	500
InvalidParameterValue	Bad or out-of-range value was supplied for the input parameter.	400

PutMetricAlarm

Description

Creates or updates an alarm and associates it with the specified Amazon CloudWatch metric. Optionally, this operation can associate one or more Amazon Simple Notification Service resources with the alarm.

When this operation creates an alarm, the alarm state is immediately set to `INSUFFICIENT_DATA`. The alarm is evaluated and its `StateValue` is set appropriately. Any actions associated with the `StateValue` is then executed.

Note

When updating an existing alarm, its `StateValue` is left unchanged.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>ActionsEnabled</i>	Indicates whether or not actions should be executed during any changes to the alarm's state. Type: Boolean	No
<i>AlarmActions.member.N</i>	The list of actions to execute when this alarm transitions into an <code>ALARM</code> state from any other state. Each action is specified as an Amazon Resource Number (ARN). Currently the only action supported is publishing to an Amazon SNS topic or an Amazon Auto Scaling policy. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.	No
<i>AlarmDescription</i>	The description for the alarm. Type: String Length constraints: Minimum length of 0. Maximum length of 255.	No
<i>AlarmName</i>	The descriptive name for the alarm. This name must be unique within the user's AWS account Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes

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Name	Description	Required
<i>ComparisonOperator</i>	The arithmetic operation to use when comparing the specified <i>Statistic</i> and <i>Threshold</i> . The specified <i>Statistic</i> value is used as the first operand. Type: String Valid Values: GreaterThanOrEqualToThreshold GreaterThanThreshold LessThanThreshold LessThanOrEqualToThreshold	Yes
<i>Dimensions.member.N</i>	The dimensions for the alarm's associated metric. Type: Dimension (p. 28) list Length constraints: Minimum of 0 item(s) in the list. Maximum of 10 item(s) in the list.	No
<i>EvaluationPeriods</i>	The number of periods over which data is compared to the specified threshold. Type: Integer	Yes
<i>InsufficientDataActions.member.N</i>	The list of actions to execute when this alarm transitions into an <code>INSUFFICIENT_DATA</code> state from any other state. Each action is specified as an Amazon Resource Number (ARN). Currently the only action supported is publishing to an Amazon SNS topic or an Amazon Auto Scaling policy. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.	No
<i>MetricName</i>	The name for the alarm's associated metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes
<i>Namespace</i>	The namespace for the alarm's associated metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes

Name	Description	Required
<i>OKActions.member.N</i>	The list of actions to execute when this alarm transitions into an <code>OK</code> state from any other state. Each action is specified as an Amazon Resource Number (ARN). Currently the only action supported is publishing to an Amazon SNS topic or an Amazon Auto Scaling policy. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.	No
<i>Period</i>	The period in seconds over which the specified statistic is applied. Type: Integer	Yes
<i>Statistic</i>	The statistic to apply to the alarm's associated metric. Type: String Valid Values: <code>SampleCount</code> <code>Average</code> <code>Sum</code> <code>Minimum</code> <code>Maximum</code>	Yes
<i>Threshold</i>	The value against which the specified statistic is compared. Type: Double	Yes
<i>Unit</i>	The unit for the alarm's associated metric. Type: String Valid Values: <code>Seconds</code> <code>Microseconds</code> <code>Milliseconds</code> <code>Bytes</code> <code>Kilobytes</code> <code>Megabytes</code> <code>Gigabytes</code> <code>Terabytes</code> <code>Bits</code> <code>Kilobits</code> <code>Megabits</code> <code>Gigabits</code> <code>Terabits</code> <code>Percent</code> <code>Count</code> <code>Bytes/Second</code> <code>Kilobytes/Second</code> <code>Megabytes/Second</code> <code>Gigabytes/Second</code> <code>Terabytes/Second</code> <code>Bits/Second</code> <code>Kilobits/Second</code> <code>Megabits/Second</code> <code>Gigabits/Second</code> <code>Terabits/Second</code> <code>Count/Second</code> <code>None</code>	No

Errors

For information about the common errors that all actions use, see [Common Errors \(p. 37\)](#).

Error	Description	HTTP Status Code
<code>LimitExceeded</code>	The quota for alarms for this customer has already been reached.	400

PutMetricData

Description

Publishes metric data points to Amazon CloudWatch. Amazon Cloudwatch associates the data points with the specified metric. If the specified metric does not exist, Amazon CloudWatch creates the metric.

Note

If you create a metric with the `PutMetricData` action, allow up to fifteen minutes for the metric to appear in calls to the [ListMetrics](#) (p. 16) action.

The size of a request is limited to 8 KB for HTTP GET requests and 40 KB for HTTP POST requests.

Important

Although the `Value` parameter accepts numbers of type `Double`, Amazon CloudWatch truncates values with very large exponents. Values with base-10 exponents greater than 126 (1×10^{126}) are truncated. Likewise, values with base-10 exponents less than -130 (1×10^{-130}) are also truncated.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters](#) (p. 35).

Name	Description	Required
<i>MetricData.member.N</i>	A list of data describing the metric. Type: MetricDatum (p. 33) list	Yes
<i>Namespace</i>	The namespace for the metric data. Note You cannot specify a namespace that begins with "AWS/". Namespaces that begin with "AWS/" are reserved for other Amazon Web Services products that send metrics to Amazon CloudWatch. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes

Errors

For information about the common errors that all actions use, see [Common Errors](#) (p. 37).

Error	Description	HTTP Status Code
<code>InternalService</code>	Indicates that the request processing has failed due to some unknown error, exception, or failure.	500
<code>InvalidParameterCombination</code>	Parameters that must not be used together were used together.	400

Error	Description	HTTP Status Code
InvalidParameterValue	Bad or out-of-range value was supplied for the input parameter.	400
MissingRequiredParameter	An input parameter that is mandatory for processing the request is not supplied.	400

Examples

Sample Request

The following example puts data for a single metric containing one dimension:

```
https://monitoring.amazonaws.com/doc/2010-08-01/
?Action=PutMetricData
&Version=2010-08-01
&Namespace=TestNamespace
&MetricData.member.1.MetricName=buffers
&MetricData.member.1.Unit=Bytes
&MetricData.member.1.Value=231434333
&MetricData.member.1.Dimensions.member.1.Name=InstanceType
&MetricData.member.1.Dimensions.member.1.Value=m1.small
&AUTHPARAMS
```

The following example puts data for a single metric containing two dimensions:

```
https://monitoring.amazonaws.com/doc/2010-08-01/
?Action=PutMetricData
&Version=2010-08-01
&Namespace=TestNamespace
&MetricData.member.1.MetricName=buffers
&MetricData.member.1.Unit=Bytes
&MetricData.member.1.Value=231434333
&MetricData.member.1.Dimensions.member.1.Name=InstanceID
&MetricData.member.1.Dimensions.member.1.Value=i-aaba32d4
&MetricData.member.1.Dimensions.member.2.Name=InstanceType
&MetricData.member.1.Dimensions.member.2.Value=m1.small
&AUTHPARAMS
```

The following example puts data for two metrics, each with two dimensions:

```
https://monitoring.amazonaws.com/doc/2010-08-01/
?Action=PutMetricData
&Version=2010-08-01
&Namespace=TestNamespace
&MetricData.member.1.MetricName=buffers
&MetricData.member.1.Unit=Bytes
&MetricData.member.1.Value=231434333
&MetricData.member.1.Dimensions.member.1.Name=InstanceID
```

```
&MetricData.member.1.Dimensions.member.1.Value=i-aaba32d4
&MetricData.member.1.Dimensions.member.2.Name=InstanceType
&MetricData.member.1.Dimensions.member.2.Value=m1.small
&MetricData.member.2.MetricName=latency
&MetricData.member.2.Unit=Milliseconds
&MetricData.member.2.Value=23
&MetricData.member.2.Dimensions.member.1.Name=InstanceID
&MetricData.member.2.Dimensions.member.1.Value=i-aaba32d4
&MetricData.member.2.Dimensions.member.2.Name=InstanceType
&MetricData.member.2.Dimensions.member.2.Value=m1.small
&AUTHPARAMS
```

Sample Response

```
<PutMetricDataResponse xmlns="http://monitoring.amazonaws.com/doc/2010-08-01/">

  <ResponseMetadata>
    <RequestId>e16fc4d3-9a04-11e0-9362-093a1cae5385</RequestId>
  </ResponseMetadata>
</PutMetricDataResponse>
```

SetAlarmState

Description

Temporarily sets the state of an alarm. When the updated `StateValue` differs from the previous value, the action configured for the appropriate state is invoked. This is not a permanent change. The next periodic alarm check (in about a minute) will set the alarm to its actual state.

Request Parameters

For information about the common parameters that all actions use, see [Common Query Parameters \(p. 35\)](#).

Name	Description	Required
<i>AlarmName</i>	The descriptive name for the alarm. This name must be unique within the user's AWS account. The maximum length is 255 characters. Type: String Length constraints: Minimum length of 1. Maximum length of 255.	Yes
<i>StateReason</i>	The reason that this alarm is set to this specific state (in human-readable text format) Type: String Length constraints: Minimum length of 0. Maximum length of 1023.	Yes
<i>StateReasonData</i>	The reason that this alarm is set to this specific state (in machine-readable JSON format) Type: String Length constraints: Minimum length of 0. Maximum length of 4000.	No
<i>StateValue</i>	The value of the state. Type: String Valid Values: OK ALARM INSUFFICIENT_DATA	Yes

Errors

For information about the common errors that all actions use, see [Common Errors \(p. 37\)](#).

Error	Description	HTTP Status Code
<code>InvalidFormat</code>	Data was not syntactically valid JSON.	400
<code>ResourceNotFound</code>	The named resource does not exist.	404

Data Types

The Amazon CloudWatch API contains several data types that various actions use. This section describes each data type in detail.

Note

The order of each element in the response is not guaranteed. Applications should not assume a particular order.

The following data types are supported:

- [AlarmHistoryItem](#) (p. 25)
- [Datapoint](#) (p. 26)
- [DescribeAlarmHistoryResult](#) (p. 27)
- [DescribeAlarmsForMetricResult](#) (p. 27)
- [DescribeAlarmsResult](#) (p. 27)
- [Dimension](#) (p. 28)
- [DimensionFilter](#) (p. 28)
- [GetMetricStatisticsResult](#) (p. 29)
- [ListMetricsResult](#) (p. 29)
- [Metric](#) (p. 30)
- [MetricAlarm](#) (p. 30)
- [MetricDatum](#) (p. 33)
- [StatisticSet](#) (p. 34)

AlarmHistoryItem

Description

The `AlarmHistoryItem` data type contains descriptive information about the history of a specific alarm. If you call [DescribeAlarmHistory](#) (p. 5), Amazon CloudWatch returns this data type as part of the [DescribeAlarmHistoryResult](#) (p. 27) data type.

Contents

Name	Description
AlarmName	The descriptive name for the alarm. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
HistoryData	Machine-readable data about the alarm in JSON format. Type: String Length constraints: Minimum length of 1. Maximum length of 4095.
HistoryItemType	The type of alarm history item. Type: String Valid Values: <code>ConfigurationUpdate</code> <code>StateUpdate</code> <code>Action</code>
HistorySummary	A human-readable summary of the alarm history. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
Timestamp	The time stamp for the alarm history item. Type: DateTime

Datapoint

Description

The `Datapoint` data type encapsulates the statistical data that Amazon CloudWatch computes from metric data.

Contents

Name	Description
Average	The average of metric values that correspond to the datapoint. Type: Double
Maximum	The maximum of the metric value used for the datapoint. Type: Double
Minimum	The minimum metric value used for the datapoint. Type: Double
SampleCount	The number of metric values that contributed to the aggregate value of this datapoint. Type: Double
Sum	The sum of metric values used for the datapoint. Type: Double
Timestamp	The time stamp used for the datapoint. Type: DateTime

Name	Description
Unit	The standard unit used for the datapoint. Type: String Valid Values: Seconds Microseconds Milliseconds Bytes Kilobytes Megabytes Gigabytes Terabytes Bits Kilobits Megabits Gigabits Terabits Percent Count Bytes/Second Kilobytes/Second Megabytes/Second Gigabytes/Second Terabytes/Second Bits/Second Kilobits/Second Megabits/Second Gigabits/Second Terabits/Second Count/Second None

DescribeAlarmHistoryResult

Description

The output for the [DescribeAlarmHistory](#) (p. 5) action.

Contents

Name	Description
AlarmHistoryItems	A list of alarm histories in JSON format. Type: AlarmHistoryItem (p. 25) list
NextToken	A string that marks the start of the next batch of returned results. Type: String

DescribeAlarmsForMetricResult

Description

The output for the [DescribeAlarmsForMetric](#) (p. 9) action.

Contents

Name	Description
MetricAlarms	A list of information for each alarm with the specified metric. Type: MetricAlarm (p. 30) list

DescribeAlarmsResult

Description

The output for the [DescribeAlarms](#) (p. 7) action.

Contents

Name	Description
MetricAlarms	A list of information for the specified alarms. Type: MetricAlarm (p. 30) list
NextToken	A string that marks the start of the next batch of returned results. Type: String

Dimension

Description

The `Dimension` data type further expands on the identity of a metric using a Name, Value pair.

For examples that use one or more dimensions, see [PutMetricData \(p. 21\)](#).

Contents

Name	Description
Name	The name of the dimension. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
Value	The value representing the dimension measurement Type: String Length constraints: Minimum length of 1. Maximum length of 255.

DimensionFilter

Description

The `DimensionFilter` data type is used to filter [ListMetrics \(p. 16\)](#) results.

Contents

Name	Description
Name	The dimension name to be matched. Type: String Length constraints: Minimum length of 1. Maximum length of 255.

Name	Description
Value	<p>The value of the dimension to be matched.</p> <p>Note</p> <p>Specifying a <code>Name</code> without specifying a <code>Value</code> returns all values associated with that <code>Name</code>.</p> <p>Type: String</p> <p>Length constraints: Minimum length of 1. Maximum length of 255.</p>

GetMetricStatisticsResult

Description

The output for the [GetMetricStatistics](#) (p. 13) action.

Contents

Name	Description
Datapoints	<p>The datapoints for the specified metric.</p> <p>Type: Datapoint (p. 26) list</p>
Label	<p>A label describing the specified metric.</p> <p>Type: String</p>

ListMetricsResult

Description

The output for the [ListMetrics](#) (p. 16) action.

Contents

Name	Description
Metrics	<p>A list of metrics used to generate statistics for an AWS account.</p> <p>Type: Metric (p. 30) list</p>
NextToken	<p>A string that marks the start of the next batch of returned results.</p> <p>Type: String</p>

Metric

Description

The `Metric` data type contains information about a specific metric. If you call [ListMetrics \(p. 16\)](#), Amazon CloudWatch returns information contained by this data type.

The example in the Examples section publishes two metrics named buffers and latency. Both metrics are in the examples namespace. Both metrics have two dimensions, InstanceID and InstanceType.

Contents

Name	Description
Dimensions	A list of dimensions associated with the metric. Type: Dimension (p. 28) list Length constraints: Minimum of 0 item(s) in the list. Maximum of 10 item(s) in the list.
MetricName	The name of the metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
Namespace	The namespace of the metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.

MetricAlarm

Description

The `MetricAlarm` (p. 30) data type represents an alarm. You can use [PutMetricAlarm \(p. 18\)](#) to create or update an alarm.

Contents

Name	Description
ActionsEnabled	Indicates whether actions should be executed during any changes to the alarm's state. Type: Boolean
AlarmActions	The list of actions to execute when this alarm transitions into an <code>ALARM</code> state from any other state. Each action is specified as an Amazon Resource Number (ARN). Currently the only actions supported are publishing to an Amazon SNS topic and triggering an Auto Scaling policy. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.

Name	Description
AlarmArn	The Amazon Resource Name (ARN) of the alarm. Type: String Length constraints: Minimum length of 1. Maximum length of 1600.
AlarmConfigurationUpdatedTimestamp	The time stamp of the last update to the alarm configuration. Type: DateTime
AlarmDescription	The description for the alarm. Type: String Length constraints: Minimum length of 0. Maximum length of 255.
AlarmName	The name of the alarm. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
ComparisonOperator	The arithmetic operation to use when comparing the specified <code>Statistic</code> and <code>Threshold</code> . The specified <code>Statistic</code> value is used as the first operand. Type: String Valid Values: <code>GreaterThanOrEqualToThreshold</code> <code>GreaterThanThreshold</code> <code>LessThanThreshold</code> <code>LessThanOrEqualToThreshold</code>
Dimensions	The list of dimensions associated with the alarm's associated metric. Type: Dimension (p. 28) list Length constraints: Minimum of 0 item(s) in the list. Maximum of 10 item(s) in the list.
EvaluationPeriods	The number of periods over which data is compared to the specified threshold. Type: Integer
InsufficientDataActions	The list of actions to execute when this alarm transitions into an <code>INSUFFICIENT_DATA</code> state from any other state. Each action is specified as an Amazon Resource Number (ARN). Currently the only actions supported are publishing to an Amazon SNS topic or triggering an Auto Scaling policy. Important The current WSDL lists this attribute as <code>UnknownActions</code> . Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.

Name	Description
MetricName	The name of the alarm's metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
Namespace	The namespace of alarm's associated metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
OKActions	The list of actions to execute when this alarm transitions into an <code>OK</code> state from any other state. Each action is specified as an Amazon Resource Number (ARN). Currently the only actions supported are publishing to an Amazon SNS topic and triggering an Auto Scaling policy. Type: String list Length constraints: Minimum of 0 item(s) in the list. Maximum of 5 item(s) in the list.
Period	The period in seconds over which the statistic is applied. Type: Integer
StateReason	A human-readable explanation for the alarm's state. Type: String Length constraints: Minimum length of 0. Maximum length of 1023.
StateReasonData	An explanation for the alarm's state in machine-readable JSON format Type: String Length constraints: Minimum length of 0. Maximum length of 4000.
StateUpdatedTimestamp	The time stamp of the last update to the alarm's state. Type: DateTime
StateValue	The state value for the alarm. Type: String Valid Values: <code>OK</code> <code>ALARM</code> <code>INSUFFICIENT_DATA</code>
Statistic	The statistic to apply to the alarm's associated metric. Type: String Valid Values: <code>SampleCount</code> <code>Average</code> <code>Sum</code> <code>Minimum</code> <code>Maximum</code>
Threshold	The value against which the specified statistic is compared. Type: Double

Name	Description
Unit	The unit of the alarm's associated metric. Type: String Valid Values: Seconds Microseconds Milliseconds Bytes Kilobytes Megabytes Gigabytes Terabytes Bits Kilobits Megabits Gigabits Terabits Percent Count Bytes/Second Kilobytes/Second Megabytes/Second Gigabytes/Second Terabytes/Second Bits/Second Kilobits/Second Megabits/Second Gigabits/Second Terabits/Second Count/Second None

MetricDatum

Description

The `MetricDatum` data type encapsulates the information sent with [PutMetricData \(p. 21\)](#) to either create a new metric or add new values to be aggregated into an existing metric.

Contents

Name	Description
Dimensions	A list of dimensions associated with the metric. Note, when using the Dimensions value in a query, you need to append .member.N to it (e.g., Dimensions.member.N). Type: Dimension (p. 28) list Length constraints: Minimum of 0 item(s) in the list. Maximum of 10 item(s) in the list.
MetricName	The name of the metric. Type: String Length constraints: Minimum length of 1. Maximum length of 255.
StatisticValues	A set of statistical values describing the metric. Type: StatisticSet (p. 34)
Timestamp	The time stamp used for the metric. If not specified, the default value is set to the time the metric data was received. Type: DateTime

Name	Description
Unit	<p>The unit of the metric.</p> <p>Type: String</p> <p>Valid Values: Seconds Microseconds Milliseconds Bytes Kilobytes Megabytes Gigabytes Terabytes Bits Kilobits Megabits Gigabits Terabits Percent Count Bytes/Second Kilobytes/Second Megabytes/Second Gigabytes/Second Terabytes/Second Bits/Second Kilobits/Second Megabits/Second Gigabits/Second Terabits/Second Count/Second None</p>
Value	<p>The value for the metric.</p> <p>Important</p> <p>Although the <code>Value</code> parameter accepts numbers of type <code>Double</code>, Amazon CloudWatch truncates values with very large exponents. Values with base-10 exponents greater than 126 (1×10^{126}) are truncated. Likewise, values with base-10 exponents less than -130 (1×10^{-130}) are also truncated.</p> <p>Type: Double</p>

StatisticSet

Description

The `StatisticSet` data type describes the `StatisticValues` component of [MetricDatum](#) (p. 33), and represents a set of statistics that describes a specific metric.

Contents

Name	Description
Maximum	<p>The maximum value of the sample set.</p> <p>Type: Double</p>
Minimum	<p>The minimum value of the sample set.</p> <p>Type: Double</p>
SampleCount	<p>The number of samples used for the statistic set.</p> <p>Type: Double</p>
Sum	<p>The sum of values for the sample set.</p> <p>Type: Double</p>

Common Query Parameters

This section lists the request parameters that all actions use. Any action-specific parameters are listed in the topic for the action.

Parameter Name	Description	Required
<i>Action</i>	The action to perform. Default: None Type: String	Yes
<i>AuthParams</i>	The parameters required to authenticate a query request. Contains: AWSAccessKeyId SignatureVersion Timestamp Signature Default: None	Conditional
<i>AWSAccessKeyId</i>	The Access Key ID corresponding to the AWS Secret Access Key you used to sign the request. Default: None Type: String	Yes
<i>Expires</i>	The date and time at which the request signature expires, in the format YYYY-MM-DDThh:mm:ssZ, as specified in the ISO 8601 standard. Condition: Requests must include either <i>Timestamp</i> or <i>Expires</i> , but not both. Default: None Type: String	Conditional

Parameter Name	Description	Required
<i>SecurityToken</i>	The temporary security token obtained through a call to AWS Security Token Service. Only available for actions in the following AWS services: Amazon EC2, Amazon Simple Notification Service, Amazon SQS, and AWS SimpleDB. Default: None Type: String	
<i>Signature</i>	The digital signature you created for the request. Refer to the service's developer documentation for information about how to generate the signature. Default: None Type: String	Yes
<i>SignatureMethod</i>	The hash algorithm you used to create the request signature. Default: None Valid Values: HmacSHA256 HmacSHA1. Type: String	Yes
<i>SignatureVersion</i>	The signature version you use to sign the request. Set this to the value recommended in your product-specific documentation on security. Default: None Type: String	Yes
<i>Timestamp</i>	The date and time the request was signed, in the format YYYY-MM-DDThh:mm:ssZ, as specified in the ISO 8601 standard. Condition: Requests must include either <i>Timestamp</i> or <i>Expires</i> , but not both. Default: None Type: String	Conditional
<i>Version</i>	The API version to use, in the format YYYY-MM-DD. Default: None Type: String	Yes

Common Errors

This section lists the common errors that all actions return. Any action-specific errors are listed in the topic for the action.

Error	Description	HTTP Status Code
IncompleteSignature	The request signature does not conform to AWS standards.	400
InternalFailure	The request processing has failed due to some unknown error, exception or failure.	500
InvalidAction	The action or operation requested is invalid.	400
InvalidClientTokenId	The X.509 certificate or AWS Access Key ID provided does not exist in our records.	403
InvalidParameterCombination	Parameters that must not be used together were used together.	400
InvalidParameterValue	A bad or out-of-range value was supplied for the input parameter.	400
InvalidQueryParameter	AWS query string is malformed, does not adhere to AWS standards.	400
MalformedQueryString	The query string is malformed.	404
MissingAction	The request is missing an action or operation parameter.	400
MissingAuthenticationToken	Request must contain either a valid (registered) AWS Access Key ID or X.509 certificate.	403
MissingParameter	An input parameter that is mandatory for processing the request is not supplied.	400

Error	Description	HTTP Status Code
OptInRequired	The AWS Access Key ID needs a subscription for the service.	403
RequestExpired	Request is past expires date or the request date (either with 15 minute padding), or the request date occurs more than 15 minutes in the future.	400
ServiceUnavailable	The request has failed due to a temporary failure of the server.	503
Throttling	Request was denied due to request throttling.	400