

NTT Communications

Cloudⁿ

Monitoring API Manual

Ver.1.2

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Ver.1.0	3/26/2013	Created 1 st draft
Ver.1.1	4/10/2013	Added "3. Using Monitoring with AutoScaling Service" and "4. Using Monitoring with LBA Service"
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1-1) API request format

In this service, customers are provided with APIs for adding and deleting the Monitoring Service settings.

By using these APIs, the customer can operate resources directly from their own programs. These APIs are also AmazonWebService CloudWatch compatible (2010-08-01). The service can be accessed from the following API Server (endpoint):

API server (endpoint) URL: <https://mon-api.jp-e1.cloudn-service.com/>

[API request format]

API requests are sent in Query API format like the one below:

```
https://mon-api.jp-e1.cloudn-service.com/?Action=ListMetrics&Version=2010-08-01&SignatureVersion=2&SignatureMethod=HmacSHA256&Timestamp=2013-02-01T05%3A54%3A53.578Z&AWSAccessKeyId=<APIKey>&Signature=<Signature>
```

The example request above is requesting for metric (= a monitoring/measuring item) information that is supported by Cloudⁿ Monitoring.

The API request contains the command type and option values, and is comprised of the following components:

1. <https://mon-api.jp-e1.cloudn-service.com/>
2. Action=ListMetrics
3. Version=2010-08-01
4. SignatureVersion=2
5. SignatureMethod=HmacSHA256
6. Timestamp=2013-02-01T05%3A54%3A53.578Z
7. AWSAccessKeyId=<APIKey>
8. Signature=<Signature>

Line 1: API server/endpoint URL

Line 2: Command sent to Cloudⁿ Monitoring

Line 3: API version (any options and its values given to the command would follow this line)

Lines 4~8: Signature information

The procedure for signing the request message is explained in the next page.

1-2) Creating requests

API requests need to have a signature to guarantee the request content. Signatures are created from the request message (created from component 1), adding the user's secret key and HMAC-SHA-256 hash algorithm.

The published key and the secret key necessary for the service are distributed beforehand, and are respectively called "APIKEY" and "SECRETKEY" in the service. Please use the distributed APIKEY and SECRETKEY for the service.

The following explains how to generate the signature and HTTP request.

1

Create command parameters for the request.

The following command parameters are created as a sample request for metrics information.

Command (parameter) = key	Values (sample) = value
Action	ListMetrics
Version	2010-08-01
SignatureVersion	2
SignatureMethod	HmacSHA256
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>



Make sure to specify the correct case for each letter.



Timestamp keys are created in ISO8601 format, using the time of request issuance.



For details about the parameters, see "5. [Monitoring API reference.](#)"

1-2) Creating requests

The next step is signature creation.

2

Sort the command parameters created in Step 1 in the ascending order of ASCII, and url-encode the values. This is only for signature creation, and the order within the request message is not rearranged. (The request message itself does not have to be rearranged.)

Command (parameter) = key	Values (sample) = value
AWSAccessKeyId	<APIKEY>
Action	ListMetrics
SignatureMethod	HmacSHA256
SignatureVersion	2
Timestamp	2013-01-30T18%3A09%3A45Z
Version	2010-08-01



Note that the keys need to be sorted in the ascending order of ASCII and not in alphabetical order.

3

Connect each key and value in Step 2 with “=” and connect the sets with “&” to create a single text string for the signature. Make sure that all the components of HTTP request are in place. Hereafter, the following text string will be referred to as “data.”

```
GET <
mon-api.jp-e1.cloudn-service.com <
/ <
AWSAccessKeyId=<APIKey>&Action=ListMetrics&SignatureMethod=HmacSHA256&SignatureVersion=2&Timestamp=2013-01-30T18%3A09%3A45Z&Version=2010-08-01
```



Start a new line after each element (at the point where < is shown) until “AWSAccessKeyId=...” query starts. The query part should be created in one line without a line break.

1-2) Creating requests

4

For the text string created in Step 3 (“data”), generate a signature using HMAC-SHA256 and SECRETKEY, and then encode it by Base64 to include in the HTTP request.

HMAC-SHA256:

Use the library function of OpenSSL and others.
(e.g., For Ruby, use “ruby-hmac (0.4.0)” of gem library, etc.)

SECRETKEY:

Use the secret key distributed by Cloudⁿ.

Sample signature generated by HMAC:

5df60c66d6715d33c5b49af3428c0cbb84918a0baa96c29f3b32670a742bdc29

Sample signature (after Base64-encoding):

NWRmNjBjNjZkNjcxNWQzM2M1YjQ5YWYzNDI4YzBjYmI4NDkxOGewYmFhOTZjMjlmM2lzMjY3MGE3NDJiZGMyoQ==



Make sure that no line breaks are included in the signature.

5

Create a request text string by adding the signature to the request message. First, url-encode the parameter values. Next, connect each key and value (already url-encoded) with “=” and connect the parameter sets with “&”. Sorting is unnecessary for HTTP requests.

```
Action=ListMetrics&SignatureMethod=HmacSHA256&SignatureVersion=2&AWS  
AccessKeyId=<APIKEY>&Version=2010-08-01&Timestamp=2013-01-  
30T18%3A09%3A45Z&Signature=NWRmNjBjNjZkNjcxNWQzM2M1YjQ5YWYzN  
DI4YzBjYmI4NDkxOGewYmFhOTZjMjlmM2lzMjY3MGE3NDJiZGMyoQ%3D%3  
D%0D%0A
```

NOTE: Do not include line breaks.

6

Using the created request message, execute a GET request in HTTPS. The endpoint for Cloudⁿ Monitoring is <https://mon-api.jp-e1.cloudn-service.com/>

```
GET /?  
Action=ListMetrics&SignatureMethod=HmacSHA256&SignatureVersion=2&AWS  
AccessKeyId=<APIKEY>&Version=2010-08-01&Timestamp=2013-01-  
30T18%3A09%3A45Z&Signature=NWRmNjBjNjZkNjcxNWQzM2M1YjQ5YWYzN  
DI4YzBjYmI4NDkxOGewYmFhOTZjMjlmM2lzMjY3MGE3NDJiZGMyoQ%3D%3  
D%0D%0A
```

NOTE: Do not include line breaks.

1-3) Confirming the response

1

When the request is successful, a response is returned in xml format as below:

```
<ListMetricsResponse xmlns="http://monitoring.amazonaws.com/doc/2010-08-01/">
  <ListMetricsResult>
    <Metrics>
      <member>
        <Dimensions>
          <member>
            <Name>InstanceId</Name>
            <Value>e123456-b678-9101-abcd-012345678910</Value>
          </member>
        </Dimensions>
        <MetricName>StatusCheckFailed_System</MetricName>
        <Namespace>Cloudn/Compute</Namespace>
      </member>
      ..... <Omission> .....
      <member>
        <Dimensions>
          <member>
            <Name>VolumeId</Name>
            <Value>12345678-dead-beaf-cafe-2929831831aa</Value>
          </member>
        </Dimensions>
        <MetricName>VolumeReadBytes</MetricName>
        <Namespace>Cloudn/DataDisk</Namespace>
      </member>
    </Metrics>
  </ListMetricsResult>
  <ResponseMetadata>
    <RequestId>fedcba-c06d-8888-2929-29298318131</RequestId>
  </ResponseMetadata>
</ListMetricsResponse>
```



Cloudⁿ Monitoring monitors most of your resources by default so some metrics may already be available when you start using the service.

2-1) Creating an alarm

This section explains how to configure an alarm in Cloudⁿ Monitoring, using a specific example.

1

In this scenario, an alarm for a virtual machine (VM) created in Cloudⁿ Compute will be made, and it will be configured to send email notifications to designated addresses (as in someone@example.com) whenever the VM's CPU utilization exceeds 90%.

The "PutMetricAlarm" method will be used for creating the alarm, and the alarm entry will be named "CPUAlarm". Other parameters are specified as follows:

Command (parameter) = key	Values (sample) = value
Action	PutMetricAlarm
AlarmActions.member.1	arn:cloudn:monitoring:jp-e1:someone@example.com
AlarmName	CPUAlarm
ComparisonOperator	GreaterThanThreshold
Dimensions.member.1.Name	Instanceld
Dimensions.member.1.Value	deadbeef-cafe-2929-2929-831beef831
EvaluationPeriods	1
MetricName	CPUUtilization
Namespace	Cloudn/Compute
Period	300
Statistic	Average
Threshold	90
SignatureMethod	HmacSHA256
Version	2010-08-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>
Signature	<Signature>



For details about the parameters, see "5. [Monitoring API reference.](#)"

For "Dimensions.member.1.Value" in the above table, a corresponding value to "Instanceld" of "Dimensions.member.1.Name" can be obtained by "ListMetrics" action.

2-1) Creating an alarm

2

When the request is successful, a response is returned in xml format like below:

```
<PutMetricAlarmResponse xmlns="http://monitoring.amazonaws.com/doc/2010-08-01/">
  <ResponseMetadata>
    <RequestId>d4183ed4-dff3-eb22-2aa2-e6e88bcdf153</RequestId>
  </ResponseMetadata>
</PutMetricAlarmResponse>
```

3

The alarm setting will show up in the Cloudⁿ Monitoring site like below:

The screenshot displays the Cloudⁿ Monitoring interface. At the top, the logo for Cloudⁿ Monitoring (NTT Communications) is on the left, and the account ID 'dn' and a 'Welcome' dropdown menu are on the right. The main content area is titled 'All Alarms' and includes 'Create', 'Modify', and 'Delete' buttons. Below these is a search bar and a dropdown menu set to 'All Alarms'. A table lists the alarms with columns for 'Select', 'Name', 'Threshold', and 'State'. One alarm is visible: 'CPUAlarm' with a threshold of 'CPUUtilization > 90'. On the left side, there are navigation menus for 'Resources' (listing All, Cloudn/DataDisk, Cloudn/Compute, Cloudn/RDB, Cloudn/AutoScale, Cloudn/LBA) and 'Alarms' (listing All).

3-1) Setting an AutoScaling policy on the alarm

Using a specific example, this section explains how to link Cloudn Monitoring Service with Cloudn AutoScaling Service to automatically create additional VMs when alarm conditions are met.

1

In this scenario, an alarm for a virtual machine (VM) created in Cloudn Compute will be made, and it will be configured with an AutoScaling policy which will create additional VMs according to the specifications of the policy whenever the VM's CPU utilization exceeds 90%.

The "PutMetricAlarm" will be used for creating the alarm, and the alarm entry will be named "AutoScaleAlarm". Other parameters are specified as follows.

Command (parameter) = key	Values (sample) = value
Action	PutMetricAlarm
AlarmActions.member.1	arn:cloudn:autoscale:jp-e1:<account ID>:scalingPolicy:autoScalingGroupName/<AutoScale group name>:policyName/<policy name>
AlarmName	AutoScaleAlarm
ComparisonOperator	GreaterThanThreshold
Dimensions.member.1.Name	InstanceId
Dimensions.member.1.Value	deadbeef-cafe-2929-2929-831beef831
EvaluationPeriods	300
MetricName	CPUUtilization
Namespace	Cloudn/Compute
Period	300
Statistic	Average
Threshold	90
SignatureMethod	HmacSHA256
Version	2010-08-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>
Signature	<Signature>



For details about the parameters, see "5 [Monitoring API reference](#)"

In "AlarmActions.member.1" above, for <AutoScale group name>, specify the AutoScaling group name. For <policy name>, enter a policy ARN. The policy ARN can be found in the <PolicyARN> tag that was found in the response after the policy was created following Step 2 of "3-3) Creating policies" in the AutoScaling API Manual.

For "Dimensions.member.1.Value" in the above table, a corresponding value to "InstanceID of "Dimensions.member.1.Name" can be obtained by "ListMetrics" action.

3-1) Setting an AutoScaling policy on the alarm

2

When the request is successful, a response will be returned in xml format as below.

```
<PutMetricAlarmResponse xmlns="http://monitoring.amazonaws.com/doc/2010-08-01/">
  <ResponseMetadata>
    <RequestId>7daf2a9c-3a30-4930-645d-9e9eff855b8d</RequestId>
  </ResponseMetadata>
</PutMetricAlarmResponse>
```

3-2) Confirming execution of AutoScaling policy via alarm

This section explains how to check whether the AutoScaling policy set as an action in a Cloudⁿ Monitoring alarm has been executed or not, using a specific example.

1

In this scenario, we will confirm the execution of a policy to increase one instance whenever CPU utilization exceeds 90% in a specific instance.

The action key "DescribeAutoScalingInstances" will be used to request a list of AutoScaling instances.

Command (parameter) = key	Values (sample) = value
Action	DescribeAutoScalingInstances
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

2

When request is successful, a response is returned in xml format as below.

```
<DescribeAutoScalingInstancesResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <DescribeAutoScalingInstancesResult>
    <AutoScalingInstances>
      ... (omission) ...
      <member>
        <HealthStatus>HEALTHY</HealthStatus>
        <AutoScalingGroupName><AutoScale group name></AutoScalingGroupName>
        ... (omission) ...
        <LaunchConfigurationName><Launch configuration name></LaunchConfigurationName>
        <LifecycleState>Running</LifecycleState>
      </member>
      <member>
        <HealthStatus>HEALTHY</HealthStatus>
        <AutoScalingGroupName><AutoScale group name></AutoScalingGroupName>
        ... (omission) ...
        <LaunchConfigurationName><Launch configuration name></LaunchConfigurationName>
        <LifecycleState>Running</LifecycleState>
      </member>
      ... (omission) ...
    </AutoScalingInstances>
  </DescribeAutoScalingInstancesResult>
  <ResponseMetadata>
    <RequestId>53be2fc3-bb2a-ffc0-edfe-c134c52a138c</RequestId>
  </ResponseMetadata>
</DescribeAutoScalingInstancesResponse>
```

4-1) Configuring alarms to monitor Load Balancers

This section explains how to configure Cloudⁿ Monitoring alarms to monitor Cloudⁿ LBA Load Balancers, and send notifications whenever specific conditions are met by using the following example.

1

In this scenario, an alarm will be made to monitor a load balancer created in Cloudⁿ LBA, and to send email notifications whenever the number of healthy load balanced VMs fall below the specified threshold (in this case, “2”).

The “PutMetricAlarm” method will be used to create the alarm, and the alarm entry will be named “LoadBalancerAlarm”. Other parameters are specified as follows.

Command (parameter) = key	Values (sample) = value
Action	PutMetricAlarm
AlarmActions.member.1	arn:cloudn:monitoring:jp-e1: <email address>
AlarmName	LoadBalancerAlarm
ComparisonOperator	LessThanThreshold
Dimensions.member.1.Name	LoadBalancerName
Dimensions.member.1.Value	<load balancer name>
EvaluationPeriods	300
MetricName	HealthyHostCount
Namespace	Cloudn/LBA
Period	300
Statistic	Average
Threshold	2
SignatureMethod	HmacSHA256
Version	2010-08-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>
Signature	<Signature>



For details about the parameters, see “5 [Monitoring API reference](#)”

For <load balancer name> above, specify the key value of “LoadBalancerName”, which was specified as a command parameter when the load balancer was created following Step 1 of “3-1) Creating Load Balancer” in the Cloudⁿ LBA API Manual.

4-1) Configuring alarms to monitor Load Balancers

2

When the request is successful, a response is returned in xml format as below.

```
<PutMetricAlarmResponse xmlns="http://monitoring.amazonaws.com/doc/2010-08-01/">
  <ResponseMetadata>
    <RequestId>15034dd7-905c-1aa3-1092-3c2840ef3add</RequestId>
  </ResponseMetadata>
</PutMetricAlarmResponse>
```

5-1) Monitoring API List (Action)

API Actions supported in this service are as follows:

	Command	Description
Action	DeleteAlarms	Deletes alarms.
	DescribeAlarmHistory	Retrieves history for the specified alarm.
	DescribeAlarms	Retrieves alarms.
	DescribeAlarmsForMetric	Retrieves all alarms for the specified metric.
	DisableAlarmActions	Disables actions for the specified alarm. When an alarm's actions are disabled, none of the alarm's actions will execute even when the alarm's state changes.
	EnableAlarmActions	Enables actions for the specified alarm.
	GetMetricStatistics	Gets statistics for the specified metric.
	ListMetrics	Returns a list of valid metrics available for your account.
	PutMetricAlarm	Creates or updates an alarm for a specific metric.



These APIs are not supported:

PutMetricData
SetAlarmState

5-2) Monitoring API Namespace/Metric List

Available metrics and namespaces are as follows:

Namespace and Metrics		
Namespace	Metric	Description
Cloudn/Compute (monitoring interval : 5 min.)	CPUUtilization	CPU usage (unit: Percent)
	DiskReadOps	Disk read operations (unit: Count)
	DiskWriteOps	Disk write operations (unit: Count)
	DiskReadBytes	Disk read bytes (unit: Byte)
	DiskWriteBytes	Disk write bytes (unit: Byte)
	NetworkIn	Incoming traffic bytes
	NetworkOut	Outgoing traffic bytes
	StatusCheckFailed_Instance	Result of alive monitoring for the applicable instance (virtual machine). Returns the value 1 when an abnormality is detected (unit: Count)
	StatusCheckFailed_System	Result of alive monitoring for the Cloud [®] Compute Service. Returns the value 1 when an abnormality is detected (unit: Count)
	StatusCheckFailed	Will return the value 1 when either "StatusCheckFailed_Instance" or "StatusCheckFailed_System" detects an abnormality (unit: Count)
Cloudn/DataDisk (monitoring interval : 5 min.)	VolumeReadBytes	Disk read bytes (unit: Byte)
	VolumeWriteBytes	Disk write bytes (unit: Byte)
	VolumeReadOps	Disk read operations (unit: Count)
	VolumeWriteOps	Disk write operations (unit: Count)
Cloudn/AutoScale (monitoring interval : 1 min.)	GroupMinSize	The number of minimum instances (virtual machine) set for an AutoScaling group (unit: Count)
	GroupMaxSize	The number of maximum instance (virtual machine) set for an AutoScaling group (unit: Count)
	GroupDesiredCapacity	The number of desired instances (virtual machine) set for an AutoScaling group (unit: Count)
	GroupInServiceInstances	The number of instances (virtual machine) running in AutoScaling group. Instances that are in the pending or terminating state are not counted (unit: Count)
	GroupPendingInstances	The number of instances (virtual machine) in the pending state in an AutoScaling group (unit: Count)
	GroupTerminatingInstances	The number of instances (virtual machine) in the terminating state in an AutoScaling group (unit: Count)
	GroupTotalInstances	The total number of instances (virtual machine) in an AutoScaling group (unit: Count)
Cloudn/LBA (monitoring interval : 1 min.)	RequestCount	The number of active HTTP connections (unit: Count)
	HealthyHostCount	The number of virtual servers under the load balancer operating normally (unit: Count)
	UnHealthyHostCount	The number of virtual servers under the load balancer not operating normally (unit: Count)



- The VolumeTotalReadTime, VolumeTotalWriteTime, VolumeldleTime, VolumeQueueLength metrics for Cloudn/DataDisk are unsupported at this time.
- The Latency, HTTPCode_ELB_4XX, HTTPCode_ELB_5XX, HTTPCode_Backend_2XX, HTTPCode_Backend_3XX, HTTPCode_Backend_4XX, and HTTPCode_Backend_5XX metrics for Cloudn/LBA are unsupported at this time.

5-2) Monitoring API Namespace/Metric List

Available Namespaces and Metrics in this service are as follows.

Namespace and Metrics		
Namespace	Metric	Description
Cloudn/RDB (monitoring interval : 1 min.)	BinLogDiskUsage	The amount of disk space occupied by binary logs on the master (unit: Bytes)
	CPUUtilization	Percentage of CPU utilization (unit: Percent)
	DatabaseConnections	The number of database connections (unit: Count)
	FreeableMemory	Available RAM (unit: Bytes)
	FreeStorageSpace	Available storage space (unit: Bytes)
	ReplicaLag	The amount of time a read replica DB instance lags behind the source DB instance (unit: Seconds)
	SwapUsage	The amount of swap space used on the DB instance (unit: Bytes)
	ReadIOPS	The average number of disk read I/O operations per second (unit: Count/Second)
	WriteIOPS	The average number of disk write I/O operations per second (unit: Count/Second)
	ReadLatency	The average amount of time taken per disk read I/O operation (unit: Seconds)
	WriteLatency	The average amount of time taken per disk write I/O operation (unit: Seconds)
	ReadThroughput	The average number of bytes read from disk per second (unit: Bytes/Second)
	WriteThroughput	The average number of bytes written to disk per second (unit: Bytes/Second)



- The DiskQueueDepth metric for Cloudn/RDB are unsupported at this time.

5-3) Namespace/Metric/Dimension/Unit List

Available Namespace and Metric relations in this service are as follows.

Namespace and Metrics			
Namespace	Metric	Dimension Name	Unit
Cloudn/Compute (unit time: 5 min.)	CPUUtilization	InstanceId	Percent
	DiskReadOps	InstanceId	Count
	DiskWriteOps	InstanceId	Count
	DiskReadBytes	InstanceId	Bytes
	DiskWriteBytes	InstanceId	Bytes
	NetworkIn	InstanceId	Bytes
	NetworkOut	InstanceId	Bytes
	StatusCheckFailed_Instance	InstanceId	Count
	StatusCheckFailed_System	InstanceId	Count
	StatusCheckFailed	InstanceId	Count
Cloudn/DataDisk (unit time: 5 min.)	VolumeReadBytes	Volumeld	Bytes
	VolumeWriteBytes	Volumeld	Bytes
	VolumeReadOps	Volumeld	Count
	VolumeWriteOps	Volumeld	Count
Cloudn/AutoScale (unit time: 1 min.)	GroupMinSize	AutoScalingGroupName	Count
	GroupMaxSize	AutoScalingGroupName	Count
	GroupDesiredCapacity	AutoScalingGroupName	Count
	GroupInServiceInstances	AutoScalingGroupName	Count
	GroupPendingInstances	AutoScalingGroupName	Count
	GroupTerminatingInstances	AutoScalingGroupName	Count
	GroupTotalInstances	AutoScalingGroupName	Count
Cloudn/LBA (unit time: 1 min.)	RequestCount	LoadBalancerName	Count
	HealthyHostCount	LoadBalancerName	Count
	UnHealthyHostCount	LoadBalancerName,	Count

5-3) Namespace/Metric/Dimension/Unit List

Available Namespaces and Metrics in this service are as follows.

Namespace and Metrics			
Namespace	Metric	Dimension Name	Unit
Cloudn/RDB (unit time: 1min.)	BinLogDiskUsage	DBInstanceIdentifier	Bytes
	CPUUtilization	DBInstanceIdentifier	Percent
	DatabaseConnections	DBInstanceIdentifier	Count
	FreeableMemory	DBInstanceIdentifier	Bytes
	FreeStorageSpace	DBInstanceIdentifier	Bytes
	ReplicaLag	DBInstanceIdentifier	Seconds
	SwapUsage	DBInstanceIdentifier	Bytes
	ReadIOPS	DBInstanceIdentifier	Count/Second
	WriteIOPS	DBInstanceIdentifier	Count/Second
	ReadLatency	DBInstanceIdentifier	Seconds
	WriteLatency	DBInstanceIdentifier	Seconds
	ReadThroughput	DBInstanceIdentifier	Bytes/Second
	WriteThroughput	DBInstanceIdentifier	Bytes/Second

5-4) Monitoring API Common Information

The API Server (Endpoint) URL for this service:

<https://mon-api.jp-e1.cloudn-service.com/>

The following table describes common parameters used in Query API Request for Cloudⁿ Monitoring:

Common Parameters		
Parameter	Description	Required
Action	Specifies the action that will be executed Default : None Type : String	Yes
AuthParams	Unsupported	No
AWSAccessKeyId	Specifies the Access Key ID needed for request authentication Default : None Type : String	Yes
Expires	Unsupported	No
SecurityToken	Unsupported	No
Signature	The digital signature created for the request. If you would like to know how to create a signature, please refer to the “1-2) Creating requests” section of this document Default : None Type : String	Yes
SignatureMethod	The hash algorithm used to create the request signature Default : None Valid Values : HmacSHA256 HmacSHA1 Type : String	Yes
SignatureVersion	The signature version of the request Default : None Valid Values : 2 Type : String	Yes
Timestamp	The date and time when the request was submitted. It is expressed by the format “YYYY-MM-DDThh:mm:ssZ”, as specified in the ISO8601 standard. Default : None Type : String	Yes
Version	The API version number Default : None Valid Values : 2010-08-01 Type : String	Yes

The following table shows the ARN (Amazon Resource Name) supported in Cloudⁿ Monitoring:

Action ARNs	
Action	Value
Send Notification	arn:cloudn:monitoring:jp-e1:“email address” [example] arn:cloudn:monitoring:jp-e1:someone@example.com
Execute Auto Scaling Policy	Specify ARN issued during setup of AutoScaling Policy. For more information, please refer to the Cloud ⁿ AutoScaling API manual.

5-5) Monitoring API

DeleteAlarms

Description	Deletes all specified alarms.
-------------	-------------------------------

Request	
Request Method	GET
Path, Parameters, etc.	Specify Parameters described in "Common Parameters" and/or the following "Request Parameters". Specify "Delete Alarms" for Action.
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
AlarmNames.member.N (N=1, 2, 3, 4,, 100)	A list of alarms to be deleted. (N included in parameter is specified in 1 -100 range.)	Yes

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>DeleteAlarmsResponse</i>	Response Container	ResponseMetadata
		<i>ResponseMetadata</i>	Metadata Container	RequestId
	<i>RequestId</i>	RequestID		

5-5) Monitoring API

DescribeAlarmHistory

Description	Retrieves history data for specified alarm.
-------------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specify parameters described in "Common Parameters" and/or the following "Request Parameters". Specify "DescribeAlarmHistory" for Action.
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
AlarmName	The name of the alarm	No
EndDate	The ending date to retrieve alarm history.	No
HistoryItemType	The type of alarm histories. Valid types are ConfigurationUpdate and StateUpdate.	No
MaxRecords	The Maximum number of alarm history records to retrieve.	No
NextToken	The token returned by a previous call of DescribeAlarmHistory to indicate that there is more data available.	No
StartDate	The starting date to retrieve alarm history.	No

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>DescribeAlarmHistoryResponse</i>	Response Container	ResponseMetadata, DescribeAlarmHistoryResult , NextToken
		<i>ResponseMetadata</i>	Metadata Container	RequestId
		<i>RequestId</i>	Request ID	
		<i>DescribeAlarmHistoryResult</i>	Container to store the result	AlarmHistoryItems
		<i>NextToken</i>	Token to indicate the presence of other available data	
		<i>AlarmHistoryItems</i>	Container to store the alarm history.	member
		<i>member</i>	Container to store the member of alarm history.	Timestamp, HistoryItemType, AlarmName, HistoryData, HistorySummary
		<i>Timestamp</i>	The time stamp of the alarm	
		<i>HistoryItemType</i>	The type of alarm history	
		<i>AlarmName</i>	The alarm name	
		<i>HistoryData</i>	Json formatted alarm history data	
<i>HistorySummary</i>	Summary of alarm history in readable format			

5-5) Monitoring API

DescribeAlarms

Description	Retrieves specified alarms
Request	
Request Method	GET
Path, Parameters, etc.	Specify parameters described in "Common Parameters" and/or the following "Request Parameters". Specify "DescribeAlarms" for Action.
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
ActionPrefix	The action name prefix	No
AlarmNamePrefix	The alarm name prefix	No
AlarmNames.member.N (N= 1, 2, 3,, 100)	A list of alarm names to retrieve information for.	No
MaxRecords	The maximum number of alarm records to retrieve.	No
NextToken	The token returned by a previous call of DescribeAlarms to indicate that there is more data available.	No
StateValue	The state of alarm. Valid values are OK and ALARM.	No

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>DescribeAlarmsResponse</i>	Response Container	ResponseMetadata, <i>DescribeAlarmsResult</i> , NextToken
		<i>ResponseMetadata</i>	Metadata Container	RequestId
		<i>RequestId</i>	Request ID	
		<i>DescribeAlarmsResult</i>	Container to store the result	MetricAlarms
		<i>NextToken</i>	Token to indicate the presence of other available data	
		<i>MetricAlarms</i>	Container to store the alarm	member
		<i>member</i>	Container to store the member	AlarmDescription, AlarmArn, StateReasonData, AlarmName, StateUpdatedTimestamp, AlarmConfigurationUpdatedTimestamp, StateValue, OKActions, ActionEnabled, Namespace, Threshold, EvaluationPeriods, Statistic, AlarmActions , StateReason, Unit, Dimensions, ComparisonOperator, MetricName
		<i>AlarmDescription</i>	Description of the alarm	
		<i>StateUpdatedTimestamp</i>	The time stamp of the last update to the state of the alarm	
		<i>StateReasonData</i>	The state of Json formatted alarm	
		<i>AlarmArn</i>	ARN (Amazon Resource Name) of the alarm	

5-5) Monitoring API

DescribeAlarms

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>AlarmConfigurationUpdatedTimestamp</i>	The time stamp of the last update to the configuration of the alarm.	
		<i>AlarmName</i>	The alarm name	
		<i>StateValue</i>	The state of alarm (OK, ALARM)	
		<i>Period</i>	The period over which the statistic is applied.	
		<i>OKActions</i>	Actions to execute when the alarm transitions into an OK state.	
		<i>ActionsEnabled</i>	Indicates whether actions should be executed.	
		<i>Namespace</i>	The namespace	
		<i>Threshold</i>	The threshold	
		<i>EvaluationPeriods</i>	The period over which the threshold is compared to the data.	
		<i>Statistic</i>	The statistics methods Valid Values: SampleCount Average Sum Minimum Maximum	
		<i>AlarmActions</i>	ARN of the actions to execute when threshold is exceeded.	
		<i>StateReason</i>	The reason of the state when data was retrieved in readable format.	
		<i>Unit</i>	The unit of measurement	
		<i>Dimensions</i>	Dimension	member
		<i>member</i>	The member of dimension	(Parent node: Dimensions)
		<i>name</i>	The name of dimension	(Parent node: Dimensions.member)
		<i>Value</i>	The value of dimension	(Parent node: Dimensions.member)
		<i>ComparisonOperator</i>	The comparison operator	
	<i>MetricName</i>	The name of metric		

5-5) Monitoring API

DescribeAlarmsForMetric

Description	Retrieve alarms for the specified metric
Request	
Request Method	GET
Path,Parameters, etc	Specify parameters described in "Common Parameters" and /or following "Request Parameters". Specify "DescribeAlarmsForMetric" for Action.
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
Dimensions.member.N (N= 1, 2, 3,, 100)	Specify dimension. As dimension consists of Name-Value Pair, Dimensions.member.N.Name and Dimensions.member.N.Value need to be specified. [example] Dimensions.member.1.Name=InstanceId Dimensions.member.1.Value=deadbeef-2929-dead-beef-cafe292983129	No
MetricName	The name of metric	Yes
Namespace	The namespace	Yes
Period	The period over which the statistic is applied in seconds	No
Statistic	The statistics methods Valid Values: SampleCount Average Sum Minimum Maximum	No
Unit	The unit of measurement for the metric. 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				
Response (Body)	Format	XML		
	XML	Node	Description	ChildNode
		<i>DescribeAlarmsForMetricResponse</i>	Response Container	ResponseMetadata, <i>DescribeAlarmsResult</i> , NextToken
		<i>ResponseMetadata</i>	Metadata Container	RequestId
		<i>RequestId</i>	Request ID	
		<i>DescribeAlarmsFroMetricResult</i>	Container to store the result	MetricAlarms
		<i>NextToken</i>	Token to indicate the presence of other available data	
		<i>MetricAlarms</i>	Container to store the alarm	member
<i>member</i>	Container to store the member	AlarmDescription, AlarmArn, StateReasonData,AlarmName, StateUpdatedTimestamp, AlarmConfigurationUpdatedTimestamp, StateValue, OKActions, ActionEnabled, Namespace, Threshold, EvaluationPeriods, Statistic, AlarmActions , StateReadson, Unit, Dimensions, ComparisonOperator, MetricName		

5-5) Monitoring API

DescribeAlarmsForMetric

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>AlarmDescription</i>	The description of alarm	
		<i>StateUpdatedTimestamp</i>	The time stamp of the last update to the state of the alarm.	
		<i>StateReasonData</i>	The state of Json formatted alarm	
		<i>AlarmArn</i>	ARN (Amazon Resource Name) of the alarm	
		<i>AlarmConfigurationUpdatedTimestamp</i>	The time stamp of the last update to the configuration of the alarm.	
		<i>AlarmName</i>	The alarm name	
		<i>StateValue</i>	The state of alarm (OK, ALARM)	
		<i>Period</i>	The period over which the statistic is applied.	
		<i>OKActions</i>	Actions to execute when the alarm transitions into an OK state.	
		<i>ActionsEnabled</i>	Indicates whether actions should be executed.	
		<i>Namespace</i>	The namespace	
		<i>Threshold</i>	The threshold	
		<i>EvaluationPeriods</i>	The period over which the threshold is compared to the data.	
		<i>Statistic</i>	The statistics methods Valid Values: SampleCount Average Sum Minimum Maximum	
		<i>AlarmActions</i>	ARN of the actions to execute when threshold is exceeded.	
		<i>StateReason</i>	The reason of the state when data was retrieved in readable format .	
		<i>Unit</i>	The unit of the measurement	
		<i>Dimensions</i>	Dimension	member
		<i>member</i>	The member of dimension	(Parent node: Dimensions)
		<i>name</i>	The name of dimension	(Parent node: Dimensions.member)
		<i>Value</i>	The value of dimension	(Parent node: Dimensions.member)
		<i>ComparisonOperator</i>	The comparison operator	
		<i>MetricName</i>	The name of metric	

5-5) Monitoring API

EnableAlarmActions

Description	Enables actions for the specified alarms.
-------------	---

Request

Request Method	GET
Path, Parameters, etc.	Specify parameters described in "Common Parameters" and /or the following "Request Parameters". Specify "EnableAlarmActions" for Action.
Header	None
Body	None

Request Parameters

Parameter	Description	Required
AlarmNames.member.N (N= 1, 2, 3,, 100)	The name of the alarms to enable actions for .	Yes

Response

Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>EnableAlarmActionsResponse</i>	Response Container	ResponseMetadata
		<i>ResponseMetadata</i>	Metadata Container	RequestId
	<i>RequestId</i>	Request ID		

5-5) Monitoring API

DisableAlarmActions

Description	Disable actions for the specified alarms.
-------------	---

Request	
Request Method	GET
Path, Parameters, etc	Specify parameters described in "Common Parameters" and /or the following "Request Parameters". Specify "DisableAlarmActions" for Action.
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
AlarmNames.member.N (N= 1, 2, 3,, 100)	The name of the alarms to disable actions for.	Yes

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>DisableAlarmActionsResponse</i>	Response Container	ResponseMetadata
		<i>ResponseMetadata</i>	Metadata Container	RequestId
		<i>RequestId</i>	Request ID	

5-5) Monitoring API

GetMetricStatistics

Description	Gets statistics for the specified metric.
-------------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specify parameters described in "Common Parameters" and /or the following "Request Parameters". Specify "GetMetricStatistics" for Action
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
Dimensions.member.N (N= 1, 2, 3,, 10)	Specifies the dimension. As dimensions consists of a Name-Value pair, both the Dimensions.member.N.Name and Dimensions.member.N.Value need to be specified. [example] Dimensions.member.1.Name=Instanceid Dimensions.member.1.Value=deadbeef-2929-dead-beef-cafe292983129	Yes
MetricName	Name of the metric	Yes
Namespace	The namespace	Yes
Period	The period over which the statistic is applied (sec.)	Yes
Statistic.Member.N (N= 1, 2, 3, 4, 5)	The statistics method Valid Values: SampleCount Average Sum Minimum Maximum	Yes
Unit	The unit of measurement for the metric. 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
EndTime	The time stamp to use for determining the last datapoint to return.	Yes
StartTime	The time stamp to use for determining the first datapoint to return.	Yes



The "Dimensions.member.N" and "Unit" parameters are not essential for Amazon Web Services, but they are essential parameters for Cloudⁿ Monitoring API.

5-5) Monitoring API

GetMetricStatistics

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>GetMetricStatisticsResponse</i>	Response Container	ResponseMetadata, GetMetricStatisticsResult
		<i>ResponseMetadata</i>	Metadata Container	RequestId
		<i>RequestId</i>	Request ID	
		<i>GetMetricStatisticsResult</i>	Container to store the result	Datapoints, Label
		<i>Datapoints</i>	Container to store the statistics data	Timestamp, Average, Maximum, Minimum, SampleCount, Sum, Unit
		<i>Timestamp</i>	The time stamp when statistics data was taken.	
		<i>Average (*)</i>	The average value	
		<i>Maximum (*)</i>	The maximum value	
		<i>Minimum (*)</i>	The minimum value	
		<i>SampleCount (*)</i>	The count of samplings which was used to calculate the average etc.	
		<i>Sum (*)</i>	The sum of values	
		<i>Unit</i>	The unit of measurement 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	
	<i>Label</i>	The name of the specified metric.		

5-5) Monitoring API

ListMetrics

Description	Returns a list of valid metrics
-------------	---------------------------------

Request	
Request Method	GET
Path, Parameters, etc	Specify parameters described in "Common Parameters" and /or the following "Request Parameters". Specify "ListMetrics" for Action
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
Dimensions.member.N (N= 1, 2, 3,, 10)	Specify dimension As dimension consists of Name-Value Pair, Dimensions.member.N.Name and Dimensions.member.N.Value need to be specified. [example] Dimensions.member.1.Name=Instanceid Dimensions.member.1.Value=deadbeef-2929-dead-beef-cafe292983129	No
MetricName	Name of the metric	No
Namespace	The namespace	No
NextToken	The token returned by a previous call of ListMetrics to indicate that there is more data available.	No

Response					
Response (Body)	Format	XML			
	XML	Node		Description	Child Node
		<i>ListMetricsResponse</i>		Response Container	ResponseMetadata, <i>ListMetricsResult</i>
		<i>ResponseMetadata</i>		Metadata Container	RequestId
		<i>RequestId</i>		Request ID	
		<i>ListMetricsResult</i>		Container to store the result of Listmetrics	
		<i>NextToken</i>		Token to indicate the presence of other available data	
		<i>Metrics</i>		Container to store the result of Metric	
		<i>Namespace</i>		The namespace	
		<i>Dimensions</i>		<i>Dimension</i>	member
			<i>member</i>	The member of dimension	(Parent node: Dimensions)name, value
			<i>Name</i>	The name of dimension	(Parent node: Dimensions.member)
			<i>Value</i>	The value of dimension	(Parent node: Dimensions.member)

5-5) Monitoring API (Action)

PutMetricAlarm

Description	Creates or updates an alarm.
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Request	
Request Method	GET
Path,Parameters, etc	Specify parameters described in “Common Parameters” and/or the following “Request Parameters”. Specify “PutMetricAlarm” for Action
Header	None
Body	None

Request Parameters		
Parameter	Description	Required
Dimensions.member.N (N= 1, 2, 3,, 100)	Specify dimension. As dimension consists of Name-Value Pair, Dimensions.member.N.Name and Dimensions.member.N.Value need to be specified. [example] Dimensions.member.1.Name=Instanceid Dimensions.member.1.Value=deadbeef-2929-dead-beef-cafe292983129	Yes
MetricName	The name of metric	Yes
Namespace	The namespace	Yes
Period (*1)	The period over which the statistic is applied (sec.)	Yes
Statistic (*1)	The statistics methods Valid Values: SampleCount Average Sum Minimum Maximum	Yes
Unit (*2)	The unit of measurement for the metric. 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
OKActions.member.N	ARN of the actions to execute when the alarm gets recovered (transitions into an OK state)	No
AlarmActions.member.N	ARN of the actions to execute when the alarm occurs	No
AlarmDescription	The description of the alarm	No
AlarmName	The alarm name (*3)	Yes
ComparisonOperator	The comparison operator	Yes
EvaluationPeriods (*1)	The period over which the threshold is compared to the data	Yes
InsufficientDataActions.member.N (*2)	Actions to execute when this transitions into an “INSUFFICIENT_DATA” state.	No
Threshold	The threshold	Yes
ActionsEnabled	Indicates whether actions should be executed (true / false)	No



- (*1) This parameter is essential to keep compatibility with Amazon Web Service API, but the value is not reflected as this is unsupported.
- (*2) The value is not reflected as this is unsupported
- (*3) You may only specify English letters and the characters “-”, “_” and “.” as an alarm name.

5-5) Monitoring API

PutMetricAlarm

Response				
Response (Body)	Format	XML		
	XML	Node	Description	Child Node
		<i>PutMetricAlarmResponse</i>	Response Container	ResponseMetadata, DescribeAlarmsResult, NextToken
		<i>ResponseMetadata</i>	Metadata Container	RequestId
<i>RequestId</i>	Request ID			