

NTT Communications

Cloud<sup>n</sup>

# **Auto Scaling API Manual**

**Ver.1.1**

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## 1-1) Overview of Service

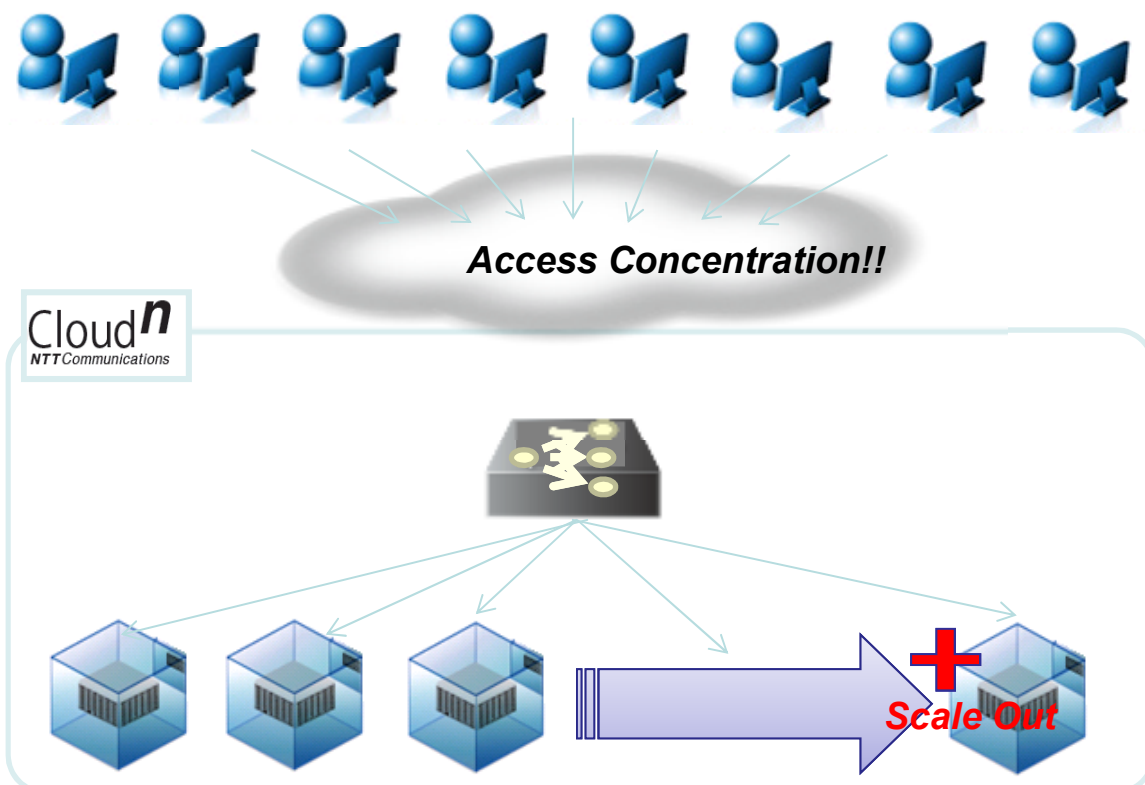
This manual explains how to use Cloud<sup>n</sup> Auto Scaling (AS).

AS is a function corresponding to Amazon Web Services (AWS) Auto Scaling, which can be used for purposes such as adjusting the number of virtual servers on Cloud<sup>n</sup> Compute etc., and always secure a certain number of virtual servers, depending on the application load of users.

In addition, the increased or decreased virtual server instances can be synchronized with the load balancing of Cloud<sup>n</sup> Load Balancing Advanced (LBA), in combination with LBA.

The functions primarily provided are as follows.

- Virtual servers can be automatically increased or decreased in accordance with Auto Scaling groups (set auto scaling behavior such as maximum and minimum number of virtual servers) and Launch Configuration of virtual servers.
- The trigger action is based on Cloud<sup>n</sup> Monitoring metrics or based on the defined schedule.
- Combining with LBA not only increases or decreases virtual servers according to system load, but also automatically integrates or detaches load balancing function.



## 1-2) Preliminary Preparations

Make the following preparations to use Cloud<sup>n</sup> AS APIs.



### **Start using AS service**

Please start using AS service from Cloud<sup>n</sup> portal. Please refer "3-1) Start using services" from " Cloud<sup>n</sup> Portal Operation Manual".



### **Get API access and private keys from Cloud<sup>n</sup> Portal**

Please get API access key and private key in "Common Services" in the Cloud<sup>n</sup> portal. Please refer "3-3) Manage API access key/private key" from "Cloud<sup>n</sup> Portal Operation Manual".



AS service cannot be used from virtual servers on Compute (VLAN Type).

## 2-1) Format of API Request

This service offers APIs to create and delete Auto Scaling groups, policies of AS service.

It is possible to directly operate the resources from the customer's program by using APIs. Furthermore, these APIs are AWS Auto Scaling compatible APIs (2011-01-01 Version). Incidentally, API Server (endpoint) URL, which is the destination URL to use APIs, is as follows.

**API server(endpoint) URL : [as-api.jp-e1.cloudn-service.com/](https://as-api.jp-e1.cloudn-service.com/)**

[Format of API Request]

API requests are sent in Query API format as follows.

```
as-api.jp-e1.cloudn-service.com/?Action=DescribeScalingProcessTypes&Version=2011-01-01&SignatureVersion=2&SignatureMethod=HmacSHA256&Timestamp=2013-02-01T05%3A54%3A53.578Z&AWSAccessKeyId=<APIKey>&Signature=<Signature>
```

This API request is example that you can use to want to get the list of scaling process types for use in the resume and suspend processes actions.

API request consists of types of instructions and its optional values primarily.

1. <https://as-api.jp-e1.cloudn-service.com/>
2. Action=DescribeScalingProcessTypes
3. Version=2011-01-01
4. SignatureVersion=2
5. SignatureMethod=HmacSHA256
6. Timestamp=2013-02-01T05%3A54%3A53.578Z
7. AWSAccessKeyId=<APIKey>
8. Signature=<Signature>

First row:	API server / endpoint URL
Second row:	Specifies the action you want AS to perform
Third row:	Options passed to commands and their values
Fourth-Eighth row:	Signature information

The procedure to add signature to the API request is explained hereafter.

## 2-2 ) Create API Request

You have to add a Signature to API requests for proving your right request. You generate a Signature by a combination of user's SECRETKEY and HMAC-SHA-256 hash algorithm and all Parameter - Value pairs.

You can get public and private keys that need to use this service in the Cloud<sup>n</sup> Portal. We call public key APIKEY, and call private key SECRETKEY on this service.

How to generate a signature and a API request are explained below.

### 1

Create Parameters of API request.

These Parameters are examples that you can use to want to get the list of scaling process types for use in the resume and suspend processes actions.

Parameter (key)	Value
Action	DescribeScalingProcessTypes
Version	2011-01-01
SignatureVersion	2
SignatureMethod	HmacSHA256
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>



The key specified is case-sensitive.



Timestamp key have to be created for API request issuance time in iso8601 format.

## 2-2 ) Create API Request

Next, create a signature.

### 2

Sort the Parameters created in step 1 in ascending order of ASCII, and URL-encode the value. This operation is used to create signatures, and does not imply sorting of the request text itself. (The text of requests need not be sorted.)

Parameter (key)	Value
AWSAccessKeyId	<APIKEY>
Action	DescribeScalingProcessTypes
SignatureMethod	HmacSHA256
SignatureVersion	2
Timestamp	2013-01-30T18%3A09%3A45Z
Version	2011-01-01



Please ensure that the sorting order of key is in ascending order of ASCII, and not alphabetical order.

### 3

Each Parameter and value in step 2 which are linked by "=" are connected by "&", and strings for signature are created in alignment with the elements of HTTP request. Here, the following string is assumed as "data".

```
GET<
https://as-api.jp-e1.cloudn-service.com<
/<
AWSAccessKeyId=<APIKey>&Action=DescribeScalingProcessTypes&SignatureMethod
=HmacSHA256&SignatureVersion=2&Timestamp=2013-01-
30T18%3A09%3A45Z&Version=2011-01-01
```



Line feeds are inserted for each element up to "AWSAccessKeyId=~" (< mark in the above, but query part is created as a single line without line feed.



## 2-2 ) Create API Request

### 4

For the "data" string created in step 3, signature is generated from HMAC-SHA256 and SECRETKEY, and encoded with Base64 such that these are included in API request.

#### **HMAC-SHA256:**

Use library function such as OpenSSL.

(Example: in case of Ruby, "ruby-hmac(0.4.0)" of gem library etc.)

#### **SECRETKEY:**

Please use the key distributed by our company in the Cloud<sup>n</sup> Portal.

#### **Sample signature by HMAC:**

5df60c66d6715d33c5b49af3428c0cbb84918a0baa96c29f3b32670a742bdc29



#### **Sample signature : (Base64 encoded)**

Please make sure that there are no line feeds in the signature.

### 5

Create the text of API request with a Signature attached. The Value of Parameter is pre-encoded as URL. The description for Parameter and Value is written as key=value (value is URL encoded), and each Parameter is connected with &. In addition, items need not be sorted in API request.

```
Action=DescribeScalingProcessTypes&SignatureMethod=HmacSHA256&SignatureVersion=2&AWSAccessKeyId=<APIKEY>&Version=2011-01-01&Timestamp=2013-01-30T18%3A09%3A45Z&Signature=XfYMZtZxXTPFtJrzQowMu4SRiguqlsKfOzJnCnQr3Ck%3D
```

※Create without line feed.

### 6

Execute API request created in HTTPS and GET method. The endpoint of AS is <https://as-api.jp-e1.cloudn-service.com>.

```
GET /?  
Action=DescribeScalingProcessTypes&SignatureMethod=HmacSHA256&SignatureVersion=2&AWSAccessKeyId=<APIKEY>&Version=2011-01-01&Timestamp=2013-01-30T18%3A09%3A45Z&Signature=XfYMZtZxXTPFtJrzQowMu4SRiguqlsKfOzJnCnQr3Ck%3D
```

※Create without line feed.

## 2-3 ) Confirm Response

1

If the API request is successful, response is returned in the following xml format.

```
<DescribeScalingProcessTypesResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <DescribeScalingProcessTypesResult>
    <Processes>
      <member>
        <ProcessName>AddToLoadBalancer</ProcessName>
      </member>
      <member>
        <ProcessName>AlarmNotification</ProcessName>
      </member>
      <member>
        <ProcessName>AZRebalance</ProcessName>
      </member>
      <member>
        <ProcessName>HealthCheck</ProcessName>
      </member>
      <member>
        <ProcessName>ReplaceUnhealthy</ProcessName>
      </member>
      <member>
        <ProcessName>ScheduledActions</ProcessName>
      </member>
      <member>
        <ProcessName>Launch</ProcessName>
      </member>
      <member>
        <ProcessName>Terminate</ProcessName>
      </member>
    </Processes>
  </DescribeScalingProcessTypesResult>
  <ResponseMetadata>
    <RequestId>cf05a0d7-24e1-6d00-190d-3715493e094f</RequestId>
  </ResponseMetadata>
</DescribeScalingProcessTypesResponse>
```

## 3-1) Create Launch Configuration

Specific examples are provided below to illustrate how to create launch configuration.

### 1

The API request to create launch configuration is created as specified below.

Action value ··· "CreateLaunchConfiguration"

LaunchConfigurationName value ··· Launch Configuration Name

ImageId value ··· Virtual server template ID

InstanceType value ··· Instance type

Parameter (key)	Value
Action	CreateLaunchConfiguration
LaunchConfigurationName	<LaunchConfigurationName>
ImageId	e388f472-86de-4538-aa79-428c4751240e
InstanceType	t1.micro
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

### 2

If the API request is successful, response is returned in the following xml format.

```
<CreateLaunchConfigurationResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <ResponseMetadata>
    <RequestId>4b4fd8-32de-2b88-ba99-84d7290aac6</RequestId>
  </ResponseMetadata>
</CreateLaunchConfigurationResponse>
```

## 3-1) Create Launch Configuration

### 3

The API request to display launch configuration is created as specified below.

Action value ··· "DescribeLaunchConfigurations"

Command (Parameter) =key	Value (Sample) =value
Action	DescribeLaunchConfigurations
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

### 4

If the API request is successful, response is returned in the following xml format.

```
<DescribeLaunchConfigurationsResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <DescribeLaunchConfigurationsResult>
    <LaunchConfigurations>
      <member>
        ... ..
        <LaunchConfigurationName>launchconfigurationname1</LaunchConfigurationName>
        <KernelId/>
        <UserData></UserData>
        <InstanceType>t1.micro</InstanceType>
        <LaunchConfigurationARN>... ..launchConfiguration:launchConfigurationName/launchconfigurationname1</LaunchConfigurationARN>
        ... ..
        <ImageId>e388f472-86de-4538-aa79-428c4751240e</ImageId>
        <KeyName></KeyName>
        <RamdiskId/>
        <InstanceMonitoring>
          <Enabled>true</Enabled>
        </InstanceMonitoring>
      </member>
    </LaunchConfigurations>
  </DescribeLaunchConfigurationsResult>
  ... ..
</DescribeLaunchConfigurationsResponse>
```

## 3-2) Create Auto Scaling Group

Specific examples are provided below to illustrate how to create policy for Auto Scaling group.

### 1

The API request to be created is specified as follows.

Action value ··· "CreateAutoScalingGroup"

AutoScalingGroupName value ··· Auto Scaling Group Name

LaunchConfigurationName value ··· Startup Configuration Name

AvailabilityZones.member.N value ··· Availability Zone Name

MinSize value ··· Minimum size of Auto Scaling group

MaxSize value ··· Maximum size of Auto Scaling group

Parameter (key)	Value
Action	CreateAutoScalingGroup
AutoScalingGroupName	<AutoScalingGroupName>
LaunchConfigurationName	<LaunchConfigurationName>
AvailabilityZones.member.1	<AvailabilityZonesMemberName>
MinSize	0
MaxSize	3
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

### 2

If the API request is successful, response is returned in the following xml format.

```
<CreateAutoScalingGroupResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <ResponseMetadata>
    <RequestId>dd525470-84b7-917c-bdf6-689d1b421283</RequestId>
  </ResponseMetadata>
</CreateAutoScalingGroupResponse>
```

## 3-2) Create Auto Scaling Group

### 3

The API request to display contents of Auto Scaling group is created as specified below.

Action value ··· "DescribeAutoScalingGroups"

Parameter (key)	Value
Action	DescribeAutoScalingGroups
AutoScalingGroupNames.member.1	<AutoScalingGroupName>
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

## 3-2) Create Auto Scaling Group

### 4

If the API request is successful, response is returned in the following xml format.

```
<DescribeAutoScalingGroupsResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <DescribeAutoScalingGroupsResult>
    <AutoScalingGroups>
      <member>
        <Tags/>
        ... ..
        <AutoScalingGroupName>autoscalinggroupname1</AutoScalingGroupName>
        ... ..
        <LaunchConfigurationName>launchconfigurationname1</LaunchConfigurationName>
        <Instances>
        </Instances>
        <DesiredCapacity>0</DesiredCapacity>
        <AvailabilityZones>
          <member>jp-e1a</member>
        </AvailabilityZones>
        <LoadBalancerNames>
        </LoadBalancerNames>
        <MinSize>0</MinSize>
        <VPCZoneIdentifier/>
        <HealthCheckGracePeriod>0</HealthCheckGracePeriod>
        <DefaultCooldown>300</DefaultCooldown>
        <AutoScalingGroupARN>arn:... ..
        autoScalingGroupName/autoscalinggroupname1</AutoScalingGroupARN>
        <TerminationPolicies>
          <member>Default</member>
        </TerminationPolicies>
        <MaxSize>3</MaxSize>
      </member>
    </AutoScalingGroups>
  </DescribeAutoScalingGroupsResult>
  <ResponseMetadata>
    <RequestId>35ded9b7-cbc6-f0ca-2b8c-877b94a5fc36</RequestId>
  </ResponseMetadata>
</DescribeAutoScalingGroupsResponse>
```

## 3-3) Monitoring Configuration of Auto Scaling Group

Specific examples are provided below to illustrate how to configure monitoring of Auto Scaling Group.

### 1

The requests to configure monitoring of Auto Scaling Group are specified below.

Action value ··· "EnableMetricsCollection"

AutoScalingGroupName value ··· Auto Scaling group Name

Granularity value ··· 1Minute

Parameter (key)	Value
Action	EnableMetricsCollection
AutoScalingGroupName	<AutoScalingGroupName>
Granularity	1Minute
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>



## 3-4) Create Policy

Specific examples are provided below to illustrate how to create policy for Auto Scaling group.

### 1

The requests to create policy are created as specified below.

Action value ··· "PutScalingPolicy"

PolicyName value ··· Policy Name

AutoScalingGroupName value ··· Auto Scaling group Name

AdjustmentType value ··· Adjustment Type

ScalingAdjustment value ··· Adjusted Value

Parameter (key)	Value
Action	PutScalingPolicy
PolicyName	<PolicyName>
AutoScalingGroupName	<AutoScalingGroupName>
AdjustmentType	ChangeInCapacity
ScalingAdjustment	1
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

## 3-4) Create Policy

### 2

If the API request is successful, response is returned in the following xml format.

```
<PutScalingPolicyResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <PutScalingPolicyResult>
    <PolicyARN>arn:cloudn:autoscale:....:scalingPolicy:autoScalingGroupName/autoscalingグループ
    名:policyName/ポリシー名</PolicyARN>
  </PutScalingPolicyResult>
  <ResponseMetadata>
    <RequestId>9f519f0f-4058-a195-2781-7fa9c81f21a5</RequestId>
  </ResponseMetadata>
</PutScalingPolicyResponse>
```



Ensure that <PolicyARN> tag is the Auto Scaling group name and policy name.

## 3-5) Execute Policy

Specific examples are provided below to illustrate how to execute policy for Auto Scaling group.

### 1

The API request to execute policy is created as specified below.

Action value ... "ExecutePolicy"

PolicyName value ... Policy Name

AutoScalingGroupName value ... Auto Scaling group Name

HonorCooldown value ... "false"

Parameter (key)	Value
Action	ExecutePolicy
PolicyName	<PolicyName>
AutoScalingGroupName	<AutoScalingGroupName>
HonorCooldown	false
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

### 2

If the API request is successful, response is returned in the following xml format.

```
<ExecutePolicyResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <ResponseMetadata>
    <RequestId>2ea3426b-b865-c1c0-db5e-b693ba9a78d1</RequestId>
  </ResponseMetadata>
</ExecutePolicyResponse>
```

## 3-6) Delete Policy Group and Launch Configuration

Specific examples are provided below to illustrate how to delete Auto Scaling group.

### 1

The API request to delete policy is created as specified below.

Action value ... "DeletePolicy"

PolicyName value ... Policy name

AutoScalingGroupName value ... Auto Scaling group Name

Parameter (key)	Value
Action	DeletePolicy
PolicyName	<PolicyName>
AutoScalingGroupName	<AutoScalingGroupName>
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSSignatureVersion	<APIKEY>

### 2

If the API request is successful, response is returned in the following xml format.

```
<DeletePolicyResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <ResponseMetadata>
    <RequestId>f23a0577-e656-0eb3-faec-248c6d811916</RequestId>
  </ResponseMetadata>
</DeletePolicyResponse>
```

## 3-6) Delete Policy Group and Launch Configuration

Specific examples are provided below to illustrate how to delete Auto Scaling group.  
Update to unused status before deleting Auto Scaling group.

### 1

The API request to update status for Auto Scaling group is created as specified below.

Action value ... "UpdateAutoScalingGroup"

AutoScalingGroupName value ... Auto Scaling group Name

DesiredCapacity value ... "0"

MaxSize value ... "0"

MixSize value ... "0"

Parameter (key)	Value
Action	UpdateAutoScalingGroup
AutoScalingGroupName	<AutoScalingGroupName>
DesiredCapacity	0
MaxSize	0
MinSize	0
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

### 2

If the API request is successful, response is returned in the following xml format.

```
<UpdateAutoScalingGroupResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <ResponseMetadata>
    <RequestId>f30efdd4-64a3-ad04-191a-1cafb7f5c924</RequestId>
  </ResponseMetadata>
</UpdateAutoScalingGroupResponse>
```

## 3-6) Delete Policy Group and Launch Configuration

### 3

The API request to delete the Auto Scaling group is created as specified below.

Action value ··· "DeleteAutoScalingGroup"

AutoScalingGroupName value ··· Auto Scaling group Name

Parameter (key)	Value
Action	DeleteAutoScalingGroup
AutoScalingGroupName	<AutoScalingGroupName>
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

### 4

If the API request is successful, response is returned in the following xml format.

```
<DeleteAutoScalingGroupResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <ResponseMetadata>
    <RequestId>7758715a-6e80-e873-1721-e70a0b954937</RequestId>
  </ResponseMetadata>
</DeleteAutoScalingGroupResponse>
```

## 3-6) Delete Policy Group and Launch Configuration

Specific examples are provided below to illustrate how to delete launch configuration.

### 1

The API request to delete launch configuration is created as specified below.

Action value ··· "DeleteLaunchConfiguration"

LaunchConfigurationName value ··· Launch Configuration Name

Parameter (key)	Value
Action	DeleteLaunchConfiguration
LaunchConfigurationName	<LaunchConfigurationName>
SignatureMethod	HmacSHA256
Version	2011-01-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWSAccessKeyId	<APIKEY>

### 2

If the API request is successful, response is returned in the following xml format.

```
<DeleteLaunchConfigurationResponse xmlns="http://autoscaling.amazonaws.com/doc/2011-01-01/">
  <ResponseMetadata>
    <RequestId>97f39410-1a62-18ea-a367-e2058595b43b</RequestId>
  </ResponseMetadata>
</DeleteLaunchConfigurationResponse>
```