

NTT Communications

Cloudⁿ

LBA
(VPC Type Open NW)
API Guidelines

Ver.1.0.0

Refrain from secondary distribution (distribution, reproduction, provision, etc.) of the content described in this booklet.

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Table of Contents

1. Introduction	Page 4
1) Service Overview	
2) Preparations	
2. How to Make API Requests	Page 6
1) API Request Format	
2) Create a Request	
3) Confirm the Response	
3. Use LBA Services	Page 11
1) Create a Load Balancer	
2) Register a Virtual Server under a Load Balancer	
3) Check the Virtual Server Status that is under a Load Balancer	
4. Use CLI Tools	Page 18
1) Install CLI Tools	
2) Manage Load Balancers with CLI Tools	
5. LBA API References	Page 21
1) List of LBA API (Action)	
2) List of LBA API (Data Type)	
3) Shared LBA Information	
4) LBA API (Action)	
5) LBA API (Data Type)	



Points to Remember in Creating LBA will be stipulated at the end of the operation guideline.

1-1) Service Overview

This guideline will describe how to use the Cloudⁿ Load Balancing Advanced (LBA).

Cloudⁿ Load Balancing Advanced (LBA) is a load balancing service that automatically distributes the application traffic to several Cloudⁿ Compute virtual servers. It is equivalent to Elastic Load Balancing (ELB) for Amazon Web Services (AWS). By using Cloudⁿ Load Balancing Advanced, large-scale traffic that flows through the internet can be configured into a scalable system that is not restricted to the performances of one virtual server.

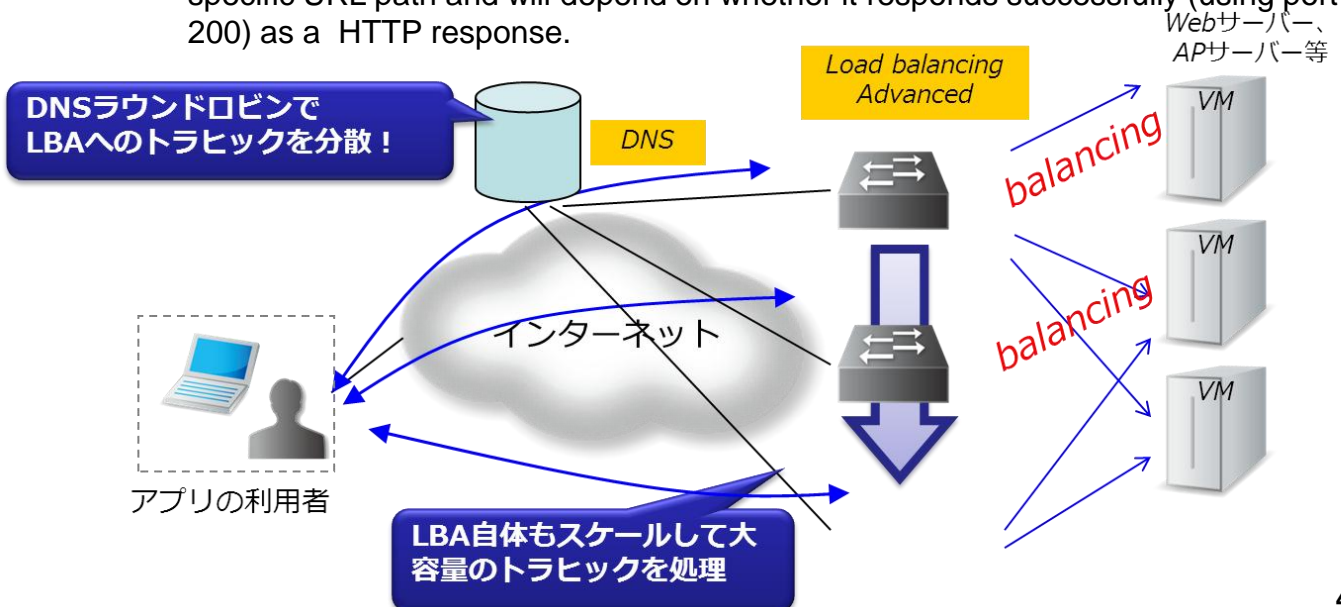
The main functions are as follows:

■ Distributing application traffic

- A special virtual service called load balancer instance (LBI) is created in the specified zone when a load balancer is made. The application traffic (HTTP and HTTPS) that reaches that virtual service will be distributed to the Cloudⁿ Compute virtual service that was registered beforehand.
- The number of LBI will automatically increase and decrease according to the number of average and simultaneous connections.
- The load balance method is Layer 4 (TCP/SSL) and Layer 7 (HTTP/HTTPS).
- LBI is the terminus for the HTTP/HTTPS sessions from the client.
- Sessions can be maintained with the virtual server with Cookies.
- SSL communications will be possible from the client to the load balancer by registering the SSL certificate onto the load balancer.

■ Health Check

- The Cloudⁿ Load Balancing Advanced service will carry out a health check to the load balancing virtual server. It will be deleted from the load balancer in case the virtual server does not react normally.
- A health check will be carried out continuously on the deleted virtual server and it will be added to the load balancer when it reacts normally again.
- By default, the TCP protocol will carry out a health check for virtual server port 80.
- When carrying out a health check with HTTP/HTTPS protocol, it will access the specific URL path and will depend on whether it responds successfully (using port 200) as a HTTP response.



1-2) Preparations

Please prepare the following to use Cloudⁿ LBA API.

Starting the use of LBA Services

Please start the LBA service with a Cloudⁿ portal by referring to “3-1 Start Service in the Cloudⁿ Portal Operation Guidelines”.

Common API Access and Secret Keys for Cloudⁿ Services

Please check common service API access and secret keys required to use LBA API for the Cloudⁿ portal. Please refer to “3-3) Manage API Access and Secret Keys” in the Cloudⁿ Portal Operation Guidelines for how to check the keys.

Virtual Server Created on the Compute (VPC Type Open NW) that Applies the LBA Services

Please prepare a virtual server (Linux OS / Cent OS, Ubuntu) created under Compute (VPC type Open NW./ East Japan).

Please refer to the Cloudⁿ Compute (VPC Type Open NW) Operation Guidelines on how to create a virtual server.



LBA Services cannot be used on a virtual server under Compute (VLAN type).

2-1) API Request Format

This service provided API to create and delete load balancers for LBA services.

It is possible to operate the resources directly from the customer's program by using API. Also, this API is compatible with Amazon Web Service Elastic Load Balancing API (2012-06-01 Version). The URL to connect the API Server (endpoint) is as follows:

API server (endpoint) URL :

<https://lba2-vpcopennw-api.jp-e1.cloudn-service.com/>

[API Request Format

The API request will be sent in a Query API format as follows. (Please go to Chapter 4 when using the command line tools provided by Amazon Web Service.)

```
https://lba2-vpcopennw-api.jp-e1.cloudn-service.com/?Action=DescribeLoadBalancers&Version=2012-06-1&SignatureVersion=2&SignatureMethod=HmacSHA256&Timestamp=2013-02-01T05%3A54%3A53.578Z&AWSAccessKeyId=<APIKey>&Signature=<Signature>
```

The above is an example when requesting load balancer information.

API requests are structured with the following elements mainly including the type of order and the optional values.

1. <https://lba2-vpcopennw-api.jp-e1.cloudn-service.com/>
2. Action=Describe Load Balancers
3. Version=2012-06-01
4. Signature Version=2
5. Signature Method=HmacSHA256
6. Timestamp=2013-02-01T05%3A54%3A53.578Z
7. AWS Access Key ID=<API Key>
8. Signature=<Signature>

1st line: API server / end point URL

2nd line: Command to Cloudⁿ LBA

3rd line: Option for the command and its value

4th to 8th line: Signature information

The following pages describe the procedures in signing the request text.

2-2) Create a Request

For API requests, a signature is added to guarantee the request. The signature is created by combining the user's secret key and the HMAC-SHA-256 hashed algorithms on the request text (created on one element).

The required open and secret keys are distributed beforehand to use the services. They are known as the API key and the secret key by this service. Please use the API key and secret key that were distributed beforehand.

The following describes how to create a signature and a HTTP request.

1

To create a command parameter for a request.

The command parameter is stated using the example of creating a request to obtain load balancer information.

Command (parameter) = key	Value (Sample) = value
Action	Describe Load Balancers
Version	2012-06-01
Signature Version	2
Signature Method	HmacSHA256
Timestamp	2013-01-30T18%3A09%3A45Z
AWS Access Key ID	<API KEY>



The specified key differentiates upper and lower case.



The time stamp key creates the time in an ISO 860 format when the request is issued.

Eg. 2013-01-30 18:09:45 will be 2013-01-30T18%3A09%3A45Z .



Please refer to "5. LBA API References" for the parameter details.

2-2) Create a Request

Next to create a signature.

2

Re-list the command parameter created in 1 into an ASCII order and URL encode the value. This operation is to create a signature and will not re-list the request text. (The request text is not sorted.)

Command (parameter) = key	Value (Sample) = value
AWS Access Key ID	<APIKEY>
Action	Describe Load Balancers
Signature Method	HmacSHA256
Signature Version	2
Timestamp	2013-01-30T18%3A09%3A45Z
Version	2012-06-01



Please be reminded that the key sorting order is in ASCII order and is not in alphabetical order.

3

Reconnect each key and value that is connected with = to &, and create the signature character string by aligning the HTTP request elements. The following character string will be called *data*.

GET<

lba2-vpcopennw-api.jp-e1.cloudn-service.com<

/<

AWSAccessKeyId=<APIKey>&Action=DescribeLoadBalancers&SignatureMethod=HmacSHA256&SignatureVersion=2&Timestamp=2013-01-30T18%3A09%3A45Z&Version=2012-06-01



A line break will be made in each element from AWS Access Key ID =~ to the query, however (the < in the above), there will be no line break in the query, which will be made in one line.

2-2) Create a Request

4

From the character string *data* created in 3, create a signature from HMAC-SHA256 and SECRET KEY, and encode this with Base64 to include in a HTTP request.

HMAC-SHA256:

Use library functions such as Open SSL.

(eg. For *ruby*, use the *ruby-hmac (0.4.0)* from the gem library)

SECRET KEY:

Please use the secret key distributed by our company.

Signature samples using HMAC

5df60c66d6715d33c5b49af3428c0cbb84918a0baa96c29f3b32670a742bdc29

Signature samples: (post Base64 encode)

NWRmNjBjNjZkNjcxNWQzM2M1YjQ5YWYzNDI4YzBjYmI4NDkxOGEwYmFhOTZjMjlmM2IzMjY3MGE3NDJiZGM5OQ==



Please be sure that there are no line breaks in the signature.

5

Add the signature onto the request text and create a request character string. URL encode the parameter value in advance. The description of the command and parameter will be key = value (the value is already URL encoded) and each parameter is connected with a &. It is not necessary to sort the HTTP request items

```
Action=DescribeLoadBalancers&SignatureMethod=HmacSHA256&SignatureVersion=2
&AWSAccessKeyId=<APIKEY>&Version=2012-06-01&Timestamp=2013-01-
30T18%3A09%3A45Z&Signature=XfYMZtZxXTPFtJrzQowMu4SRiguqlsKfOzJnCnQr3C
k%3D
```

*Create with no line breaks.

6

Execute a GET request under HTTPS based on the created request text. The end point for Cloudⁿ LBA is <https://lba2-vpcopennw-api.jp-e1.cloudn-service.com>.

```
GET /?
Action=DescribeLoadBalancers&SignatureMethod=HmacSHA256&SignatureVersion=2
&AWSAccessKeyId=<APIKEY>&Version=2012-06-01&Timestamp=2013-01-
30T18%3A09%3A45Z&Signature=XfYMZtZxXTPFtJrzQowMu4SRiguqlsKfOzJnCnQr3C
k%3D
```

*Create with no line breaks.

2-3) Confirm the Response

1

The following response in xml format will return when the request is successful.

```
<DescribeLoadBalancersResponse xmlns="http://elasticloadbalancing.amazonaws.com/doc/2012-06-01/">
  <DescribeLoadBalancersResult>
    <LoadBalancerDescriptions>
      <member>
        ...
        <LoadBalancerName>lba_sample</LoadBalancerName>
        <CreatedTime>2013-01-04T01:29:25Z</CreatedTime>
        ...
      </member>
    </LoadBalancerDescriptions>
    <ResponseMetadata>
      <RequestId>8c108443-b9c8-604b-467d-8a1fce082fe9</RequestId>
    </ResponseMetadata>
  </DescribeLoadBalancersResult>
</DescribeLoadBalancersResponse>
```



This will be a response that was created in advance with the load balancer called *lba_sample*. To create a load balancer, please refer to “3-1) Create a Load Balancer”.

3-1) Create a Load Balancer

The following is a description on how to create a load balancer using specific examples.

1

Specify the request, as follows, to create a load balancer.

Action key ···"Create Load Balancer"

Load Balancer Name key ···Name of load balancer

Subnets.member.N···Subnet name

Listeners.member.N.Protocol···Name of load balancer protocol

Listeners.member.N.LoadBalancerPort···Name of load balancer port

Listeners.member.N.InstanceProtocol···Protocol name of load balancer instance

Listeners.member.N.InstancePort···Port name of load balancer instance

Command (Parameter) = key	Value (Sample) = value
Action	Create Load Balancer
Load Balancer Name	<Load Balancer Name>
Subnets.member.1	<Subnets Member Name>
Subnets.member.2	<Subnets Member Name>
Listeners.member.1.Protocol	HTTP
Listeners.member.1.LoadBalancerPort	80
Listeners.member.1.InstanceProtocol	HTTP
Listeners.member.1.InstancePort	80
Signature Method	HmacSHA256
Version	2012-06-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWS Access Key ID	<APIKEY>



Please refer to "5. LBA API Reference" for the details of the parameters.



Several values can be set when the key name includes an *N*.
For example, the following shows how to specify several availability zones with Subnets.member.N:

Subnets.member.1=56fe012a-···

Subnets.member.2=78af123b-···

3-1) Create a Load Balancer

2

The following response in xml format will return when the request is successful.

```
<CreateLoadBalancerResponse xmlns="http://elasticloadbalancing.amazonaws.com/doc/2012-06-01/">
  <CreateLoadBalancerResult>
    <DNSName>lba-test-123456789.lba2-vpcopennw-api.jp-e1.cloudn-service.com</DNSName>
  </CreateLoadBalancerResult>
  <ResponseMetadata>
    <RequestId>1efb303b-2567-6f9b-77f2-19bee674ec91</RequestId>
  </ResponseMetadata>
</CreateLoadBalancerResponse>
```



Please check that the DNS name of the load balancer is in the DNS Name tag.

3-2) Register a Virtual Server under a Load Balancer

The following describes how to register a virtual server, using specific examples, under a separate Compute (East Japan Region) on the load balancer created in 3-1).

1

The following is how to create a request to specify and register an instance on a load balancer.

Action key ···"Register Instances With Load Balancer"

Load Balancer Name key···Name of load balancer

Instances.member.N.InstanceId···Instance ID

Command (Parameter) = key	Value (Sample) = value
Action	Register Instances With Load Balancer
Load Balancer Name	<Load Balancer Name>
Instances.member.1.InstanceId	<Instance ID>
Instances.member.2..InstanceId	<Instance ID>
Signature Method	HmacSHA256
Version	2012-06-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWS Access Key ID	<APIKEY>



Please refer to "5. LBA API Reference" for the details of the parameters.

3-2) Register a Virtual Server under a Load Balancer

2

The following response in xml format will return when the request is successful.

```
<RegisterInstancesWithLoadBalancerResponse
xmlns="http://elasticloadbalancing.amazonaws.com/doc/2012-06-01/">
  <RegisterInstancesWithLoadBalancerResult>
    <Instances>
      <member>
        <InstanceId>7c9f2cb1-23bd-4458-b9c9-2c745269e91d</InstanceId>
      </member>
      <member>
        <InstanceId>5094567f-956e-40e5-ba82-a7b899513b04</InstanceId>
      </member>
    </Instances>
  </RegisterInstancesWithLoadBalancerResult>
  <ResponseMetadata>
    <RequestId>8911624b-e1ce-3198-6a52-0411a717c693</RequestId>
  </ResponseMetadata>
</RegisterInstancesWithLoadBalancerResponse>
```



Please check that the instance ID is stored in the <Instance ID> tag.

3-3) Check the Virtual Server Status that is under the Load Balancer

The following describes how to check the virtual server status, using specific examples, that was registered under a load balancer in 2-2).

1

Create a request to specify and check the instance status with a load balancer.

Action key ··· "Describe Instances With Load Balancer"

Load Balancer Name key ··· Name of load balancer

Instances.member.N.InstanceId ··· Instance ID

Command (Parameter) = key	Value (Sample) = value
Action	Describe Instance Health
Load Balancer Name	<Load Balancer Name>
Instances.member.1.InstanceId	<Instance ID>
Instances.member.2.InstanceId	<Instance ID>
Signature Method	HmacSHA256
Version	2012-06-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWS Access Key ID	<APIKEY>



Please refer to "5. LBA API Reference" for the details of the parameters.

3-3) Check the Virtual Server Status that is under the Load Balancer

2

The following response in xml format will return when the request is successful.

```
<DescribeInstanceHealthResponse xmlns="http://elasticloadbalancing.amazonaws.com/doc/2012-06-01/">
  <DescribeInstanceHealthResult>
    <InstanceStates>
      <member>
        <Description>N/A</Description>
        <InstanceId>7c9f2cb1-23bd-4458-b9c9-2c745269e91d</InstanceId>
        <State>InService</State>
        <ReasonCode>N/A</ReasonCode>
      </member>
      <member>
        <Description>N/A</Description>
        <InstanceId>5094567f-956e-40e5-ba82-a7b899513b04</InstanceId>
        <State>InService</State>
        <ReasonCode>N/A</ReasonCode>
      </member>
    </InstanceStates>
  </DescribeInstanceHealthResult>
  <ResponseMetadata>
    <RequestId>f982538e-4195-4302-adb3-1321e184b455</RequestId>
  </ResponseMetadata>
</DescribeInstanceHealthResponse>
```



Please check that the <State> tag is *In Service*.

3-4) Delete the Load Balancer

The following describes how to delete a load balancer using specific examples.

1

Create a request by specifying to delete the load balancer.

Action key ··· "Delete Load Balancer"

Load Balancer Name key ··· Name of load balancer

Command (Parameter) = key	Value (Sample) = value
Action	Delete Load Balancer
Load Balancer Name	<Load Balancer Name>
Signature Method	HmacSHA256
Version	2012-06-01
Timestamp	2013-01-30T18%3A09%3A45Z
AWS Access Key ID	<APIKEY>



Please refer to "5. LBA API Reference" for the details of the parameters.

2

The following response in xml format will return when the request is successful.

```
<DeleteLoadBalancerResponse xmlns="http://elasticloadbalancing.amazonaws.com/doc/2012-06-01/">
  <DeleteLoadBalancerResult/>
  <ResponseMetadata>
    <RequestId>bd9a9e10-97ed-4d70-0852-9dfe9982758a</RequestId>
  </ResponseMetadata>
</DeleteLoadBalancerResponse>
```

4-1) Install CLI Tools

As Cloudn LBA API is compatible with Amazon Web Services, the Elastic Load Balancing API Tools (“ELB Tools”) provided by Amazon Web Services can be used by the command lines. Confirmation is made under the following environment.

- CentOS release 6.2 (Final)
- ElasticLoadBalancing-1.0.17.0

1

Install openjdk required to execute ELB Tools.

```
# su -  
# yum install java-1.6.0-openjdk java-1.6.0-openjdk-devel
```

2

Install the CLI tools. Hereafter the operations will be carried out with (user home directory) /elb_tools.

```
$ export WORK=${HOME}/elb_tools  
$ cd $WORK  
$ wget http://ec2-downloads.s3.amazonaws.com/ElasticLoadBalancing.zip  
$ unzip ElasticLoadBalancing.zip
```

3

Create setting file “.aws_elb_credential“ to describe the access keys.

```
$ cd $WORK  
$ vi .aws_elb_credential  
$ cat .aws_elb_credential  
AWSAccessKeyId=XXXXXXXXXXXXXXXXXXXX  
AWSSecretKey=YYYYYYYYYYYYYYYYYYYY (← add a line break)
```



Enter the AWS Access Key ID into the AWS Access Key Id and the Cloudn Secret Access Key into the AWS Secret Key.

4

Set the environment variables.

```
$ export WORK=${HOME}/elb_tools  
$ export JAVA_HOME=/usr/lib/jvm/jre  
$ export AWS_ELB_HOME=${WORK}/ElasticLoadBalancing-1.0.17.0  
$ export AWS_CREDENTIAL_FILE=${WORK}/.aws_elb_credential  
$ export PATH=$PATH:${AWS_ELB_HOME}/bin  
$ export AWS_ELB_URL=https://lba2-vpcopennw-api.jp-e1.cloudn-service.com/
```

4-2) Manage the Load Balancer with CLI Tools

The following describes how to manage the load balancer with CLI tools using specific examples.

1

Create a load balancer named “*cnlbatest*”.

```
$ elb-create-lb cnlbatest ¥  
--subnets <SUBNET_NAME> ¥  
--listener lb-port=80,instance-port=80,protocol=http,instance-protocol=http
```

The “--subnets” is an option to specify subnets that is operating instances.

The “--listener” is an option to specify the protocol, the port number that waits for the front load balancer, and the distribution location port number of the back end (the service operating the instances).

After it is created, the FQDN of the created load balancer will be displayed. It will take time before the DNS is registered.

2

Register the virtual server (instance) that will distribute the load to the created load balancer. In this example, the instance ID of the balancing location will be “7eed2527-d1f7-497f-9f6e-ae69e0e1a8fb” and “65c3b304-09b8-4278-aa1b-dc967f1dde22”.

```
$ elb-register-instances-with-lb cnlbatest ¥  
--instances ¥  
7eed2527-d1f7-497f-9f6e-ae69e0e1a8fb,65c3b304-09b8-4278-aa1b-dc967f1dde22
```



The instance ID of the virtual server can be confirmed on the Compute console. Click *Instance* on the left menu and select the virtual server of the balance destination from the list of virtual servers. Click the *Details* tab and confirm in the bottom ID column.

The screenshot shows the Compute console interface. On the left is a navigation menu with options like Dashboard, Instances, Storage, Network, Templates, Events, Projects, Accounts, and Domains. The main area is titled 'Instances' and shows a list of instances. The 'Details' tab is selected, displaying various attributes for a VM instance. The 'ID' attribute at the bottom is highlighted with a red box, showing the value '7eed2527-d1f7-497f-9f6e-ae69e0e1a8fb'.

属性	値
グループ	vm
ゾーン名	jp-e1 a
ホスト	
ドメイン	ComMan01
アカウント	DA01 -Man01
作成日時	07 Mar 2013 14:52:10
ID	7eed2527-d1f7-497f-9f6e-ae69e0e1a8fb

4-2) Manage the Load Balancer with CLI Tools

3

Check the created load balancer information.

```
$ elb-describe-lbs cnlbatest ¥  
--headers --show-request --show-xml
```

4

Check the instance information of the load balancing destination.

```
$ elb-describe-instance-health cnlbatest ¥  
--instances ¥  
7eed2527-d1f7-497f-9f6e-ae69e0e1a8fb,65c3b304-09b8-4278-aa1b-dc967f1dde22 ¥  
--headers --show-request --show-xml
```

5

Delete the load balancer.

```
$ elb-delete-lb cnlbatest
```

5-1) List of LBA API (Action)

The following are the actions provided by this service.

Action	Command	Description
	Configure Health Check	<p>This sets up a health check for the load balance destination instance.</p> <p>The Cloudⁿ Load Balancing Advanced service carries out a health check for the load balancing destination. It will be deleted from the load balancing destination in case it does not respond normally.</p> <p>A health check will continue to be executed on the deleted instance and will be added to the load balancing destination once it responds normally again.</p> <p>The default will execute a health check on the TCP protocol against port 80 on the virtual server.</p> <p>When executing a health check with the HTTP/HTTPS protocol, access the specified URL path and will be determined on whether it makes a successful HTTP response (port 200).</p> <p><Note> The default will target http://instance/index.html.</p>
	Create App Cookie Stickiness Policy	<p>LBA issues cookies to maintain the sessions to the back end server.</p> <p>By applying the policy created with Create App Cookie Stickiness Policy on to the listener, the cookie lifetime that is issued by the load balancer can be coincided to the cookie lifetime that is created by the application.</p>
	Create LB Cookie Stickiness Policy	<p>LBA issues cookies to maintain the session to the back end server.</p> <p>The lifetime of this cookie will be either the lifetime of the browser (user agent) or the period designated by the user, which ever is shorter.</p> <p>When applying the policy created with Create LB Cookie Stickiness Policy to the listener, this cookie will be used to control which back end server instance was used for each load balancer request.</p>
	Create Load Balancer	<p>Creates a new load balancer.</p> <p>A new load balancer will be created after completing a API call. The load balancer can be used if an IP address can be looked up with the DNS name included in the response.</p>
	Create Load Balancer Listeners	<p>Creates a new listener on the specified load balancer.</p> <p>A new listener is created in case there is no specified listener on the load balance port (Load Balance Port).</p>

5-1) List of LBA API (Action)

The following are the actions provided by this service.

Action	Command	Description
	Create Load Balancer Policy	<p>A new policy is created with the required attribute definitions based on the policy type.</p> <p>This policy will be stores in each load balancer. It will be used on the front end listener and the back end server depending on the policy type.</p>
	Delete Load Balancer	<p>Deletes the specified load balancer.</p> <p>All settings must be redone when recreating a load balancer. The DNS name linked to the deleted load balancer cannot be used. Once it is deleted, the name and the linked DNS records will be erased and the traffic sent to IP address will not reach the virtual server. Even if a load balancer is created with the same name, the DNS name will not be the same.</p> <p>The same account authority that was used when creating the load balancer must be used.</p> <p>Is the load balancer does not exist or if it is deleted, then it would mean that Delete Load Balancer was successful.</p>
	Delete Load Balancer Policy	<p>Deletes the policy from the load balancer.</p> <p>The specified policy must be valid for any listener.</p>
	Deregister Instances From Load Balancer	<p>This deregisters the load balancer instance from the load balancer. There will be no traffic once it is deregistered from the load balancer.</p>
	Attach Load Balancer To Subnets	<p>Registers and adds Subnets to the load balancer.</p>
	Detach Load Balancer From Subnets	<p>Deletes the registration of the Subnet from the load balancer.</p>
	Describe Instance Health	<p>Can check the instance status in the specified load balancer.</p> <p><Note></p> <p>The same account authority when creating the load balancer must be used.</p>

5-1) List of LBA API (Action)

The following are the actions provided by this service.

Action	Command	Description
	Describe Load Balancer Policies	<p>Returns the detailed information of the policies.</p> <p>When specifying the load balancer name, the list of the policy information of that load balancer will be returned (when the policy name is specified, that policy information).</p> <p>When the load balancer name is not specified, the list of the sample policy will be returned (when the policy name is specified, that policy information).</p> <p>LBA Sample- will be added to the beginning of the sample policy name.</p>
	Describe Load Balancer Policy Types	<p>This returns the meta information of the load balancer policies defined in LBA.</p> <p>The policy type that is returned in this action is a Create Load Balancer Policy action, which is used to create policies applied to load balancers.</p>
	Describe Load Balancers	<p>Can check the details of the setting information of the specified load balancer. When the load balancer is not specified, information on all the load balancers can be obtained.</p> <p><Note></p> <p>The same account authority when creating the load balancer must be used.</p>
	Disable Availability Zones For Load Balancer	<p>Will delete the Availability Zone among the Availability Zones linked to the load balancer.</p> <p>There must be at least more than one Availability Zone registered to the load balancer.</p> <p>Once the Availability Zone is deleted, the traffic to the balanced instance included in that Availability Zone will not be distributed. Nothing will be executed when deleting the Availability Zone linked to the load balancer.</p>
	Enable Availability Zones For Load Balancer	<p>Add the Availability Zone of the load balancer.</p> <p><Note></p> <p>The added Availability Zone must be created in the same region as the load balancer.</p>
	Enable Availability Zones For Load Balancer	<p>Add the Availability Zone of the load balancer.</p> <p><Note></p> <p>The added Availability Zone must be created in the same region as the load balancer.</p>

5-1) List of LBA API (Action)

The following are the actions provided by this service.

Action	Command	Description
	Register Instances With Load Balancer	<p>Add load balance instances to the load balancer. Once the instance is added, traffic from the load balancer is accepted. Instances included in the Availability Zone that is not registered in the load balancer will be transferred to the Out Of Service status. In this case, it will change to In Service when the Availability Zone is added to the load balancer.</p> <p><Note> The load balancer must be created in advance for this API. Also, the same account authority when creating the load balancer must be used.</p>
	Set Load Balancer Policies Of Listener	The policy will be linked, updated, and nullified for the load balancer listener.
	Set Load Balancer Listener SSL Certificate	<p>Specify the listener for the SSL connection and set the certificate for the SSL terminus.</p> <p>This certificate will replace any certificates already set on the specified load balancer and port.</p>
	Upload Server Certificate For LBA	<p>Uploads server certificates, secret keys, and intermediate certificates.</p> <p>Will be an original LBA API.</p>
	Delete Server Certificate For LBA	<p>Deletes the uploaded server certificate, secret keys, and intermediate certificates.</p> <p>Will be an original LBA API.</p>
	List Server Certificates For LBA	<p>Obtains the list of the uploaded server certificate, secret keys and intermediate certificates.</p> <p>Will be an original LBA API.</p>
	Attach Load Balancer To Subnets	Registers and adds load balancer Subnet.
	Detach Load Balancer From Subnets	



The following API is not supported. Set Load Balancer Policies For Backend Server

5-2) List of LBA API (Data Type)

The following are the data types used in this service.

Data Types	Command
	Configure Health Check Result
	Create App Cookie Stickiness Policy Result
	Create LB Cookie Stickiness Policy Result
	Create Load Balancer Listeners Result
	Create Load Balancer Result
	Delete Load Balancer Listeners Result
	Delete Load Balancer Result
	Deregister Instances From Load Balancer Result
	Attach Load Balancer To Subnets Result
	Detach Load Balancer From Subnets Result
	Describe Instance Health Result
	Describe Load Balancer Policies Result
	Describe Load Balancer Policy Types Result
	Describe Load Balancers Result
	Disable Availability Zones For Load Balancer Result
	Enable Availability Zones For Load Balancer Result
	Register Instances With Load Balancer Result
	Set Load Balancer Policies Of Listener Result
	Set Load Balancer Listener SSL Certificate Result
	Upload Server Certificate For LBA Result
	Delete Server Certificate For LBA Result
	List Server Certificates For LBA Result
	Backend Server Description
	Health Check
	Instance
	Instance State
	Listener
	Listener Description
	Load Balancer Description
	Source Security Group
	Policies
	Policy Attribute
	Policy Attribute Description
	Policy Description
	Policy Type Description
	Policy Attribute Type Description
	App Cookie Stickiness Policy
	LB Cookie Stickiness Policy
	Server Certificate Metadata

5-3) Common LBA API Information

The following is the API Server (End Point) provided by this service.

API server(endpoint) URL :

<https://lba2-vpcopennw-api.jp-e1.cloudn-service.com/>

The following table describes the format used for the Cloudⁿ Load Balancing Advanced Query API Request.

Common Parameters		
Parameter Name	Description	Required
Action	Executed Action. Default : None Type : String	Yes
Auth Params	No support	No
AWS Access Key ID	Specifies the Access Key ID required for request authentication. Default : None Type : String	Yes
Expires	No support	No
Security Token	No support	No
Signature	Signature for requests. Please refer to the document by the service developer on how to create a signature. Default : None Type : String	Yes
Signature Method	This is a signature hash algorithm for the request. Default : None Valid Values : HmacSHA256 HmacSHA1 Type : String	Yes
Signature Version	The is the signature version for the request. When using signature version 4, use service name, when using Kanto region (FLAT) for LBA, region, specify jp-e1. Default : None Valid Values : 2 or 4 Type : String	Yes
Timestamp	The date of the request. The description will be "YYYY-MM-DDThh:mm:ssZ" and complies with ISO8601. Default : None Type : String	Yes
Version	The used API version. Default : None Valid Values : 2012-06-01 Type : String	Yes

5-4) LBA API (Action)

Configure Health Check

Summary	<p>Sets the health check for load balance instance.</p> <p>The Cloudⁿ Load Balancing Advanced service carries out a health check for the load balance and it will be deleted from the load balancer when it does not respond normally.</p> <p>A health check will continue to be executed on the deleted instance and will be added to the load balancing destination once it responds normally again.</p> <p>The default will execute a health check on the TCP protocol against port 80 on the virtual server.</p> <p>When executing a health check with the HTTP/HTTPS protocol, access the specified URL path and will be determined on whether it makes a successful HTTP response (port 200).</p> <p><Note> The default will target <code>http://instance/index.html</code>.</p>
---------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action specifies Configure Health Check.
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Health Check	Sets up the applied health check. Type : Refer to Health Check.	Yes
Load Balancer Name	The load balancer name for the operation Type : String	Yes

Response	
Data Type	Configure Health Check Result

Response Elements	
Parameter Name	Description
Health Check	Sets up the health check after the operation Type : Refer to Health Check.

5-4) LBA API (Action)

Create App Cookie Stickiness Policy

Summary	<p>LBA issues cookies to maintain the sessions to the back end server. By applying the policy created by Create App Cookie Stickiness Policy to the listener, the lifetime of the cookie issued by the load balancer can agreed to the lifetime of the cookie created by the application.</p> <ul style="list-style-type: none"> •When the new application cookie is inserted, the load balancer will also insert the new stickiness cookie. •When the application cookie is deleted, the load balancer will also delete the stickiness cookie. <p>This policy can only be linked to HTTP/HTTPS listeners.</p> <p><Note></p> <ul style="list-style-type: none"> • This application must sent both the cookie created by the application and the cookie created by the load balancer (Name: CLOUDNLBA). • This cannot be used together with LB Cookie Stickiness Policy.
---------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Create App Cookie Stickiness Policy.
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Cookie Name	Cookie name that is created by the application Type : String	Yes
Load Balancer Name	Load balancer name Type : String	Yes
Policy Name	The created policy name It must be unique within the subjected load balancer. Type: String	Yes

Response	
Data Type	Create App Cookie Stickiness Policy Result

5-4) LBA API (Action)

Create LB Cookie Stickiness Policy

Summary	<p>LBA issues cookies to maintain the sessions to the back end server. The lifetime of this cookie will be either the lifetime of the browser (user agent) or the period designated by the user, which ever is shorter.</p> <p>When applying the policy created with Create LB Cookie Stickiness Policy to the listener, this cookie will be used to control which back end server instance was used for each load balancer request.</p> <p>When the load balancer receives a request, it checks whether this request has this cookie or not. If it has the cookie, it will transfer the request to the application service described on the cookie. If there is no cookie, the request is transferred to the server based on the balancing algorithm of the load balancer. In this case, the load balancer will return the response with the cookie. This policy will only be linked to the HTTP/HTTPS listener.</p> <p><Note></p> <ul style="list-style-type: none"> • The validity of the cookie that is issued by the load balancer under LBA cannot be longer than the browser life time (user agent). • This cannot be used together with App Cookie Stickiness Policy.
---------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Create LB Cookie Stickiness Policy.
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Cookie Expiration Period	The validity of the cookie (seconds) The lifetime of this cookie will be either the lifetime of the browser (user agent) or the period designated by the user or which ever is shorter. Type: Long	No
Load Balancer Name	Load balancer name Type: String	Yes
Policy Name	The created policy name It must be unique within the subjected load balancer. Type: String	Yes

Response	
Data Type	Create LB Cookie Stickiness Policy Result

5-4) LBA API (Action)

Create Load Balancer

Summary	<p>Creates a new load balancer.</p> <p>A new load balancer is created after the API call is completed. Can lookup the IP address and use the load balancer with the DNS name included in the Response.</p> <p>*Must clearly specify the Subnet name when distributing different Subnets to the load balancer.</p> <p>*The following Protocol will be applied when omitting the Instance Protocol in the Listener.</p> <ul style="list-style-type: none">- Will be HTTP when the Protocol is HTTP or HTTPS.- Will be TCP w-hen the Protocol is TCP or SSL. <p>*The Health Check will apply the following under default.</p> <pre><Health Check> <Interval>30</Interval> <Target>TCP:80</Target> <Healthy Threshold>10</Healthy Threshold> <Timeout>5</Timeout> <Unhealthy Threshold>2</Unhealthy Threshold> </Health Check></pre>
Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Create Load Balancer.
Header	None
Body	None

Continues to the following page

5-4) LBA API (Action)

Create Load Balancer

From the previous page

Request Parameters		
Parameter Name	Description	Required
AvailabilityZones.member.N	No need to specify.	No
Listeners.member.N	Listener (Port receiving the load balancer, protocol, load balancer port, protocol) Type : Listener list (Refer to Listener)	Yes
Load Balancer Name	Name of load balancer Type : String	Yes
Scheme	No support. No need to specify. Type : String	No
SecurityGroups.members.N	The security group ID provided to the load balancer (Cloud Stack security group ID) Must specify the security group allowing the same access when using the load balancer access port other than 80, 443. Type : String list	No
Subnets.member.N	Load balancer Subnet Must specify the same Subnet as the load balancer instance. Type : String list	Yes

Response	
Data Type	Create Load Balancer Result

Response Elements	
Parameter Name	Description
DNS Name	DNS name of load balancer Type : String

5-4) LBA API (Action)

Create Load Balancer Listeners

Summary	Creates a new listener to the designated load balancer. A new listener will be created when there is no load balancer port (Load Balancer Port) in the specified listener.
---------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Create Balancer Listeners.
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Listeners.member.N	Listener Type : Listener list (Refer to Listener)	Yes
LoadBalancerName	Name of the subjected load balancer. Type : String	Yes

Response	
Data Type	Create Load Balancer Listeners Result

5-4) LBA API (Action)

Create Load Balancer Policy

Summary	Creates a new policy defining the required attributes based on the policy type. The policy will be stored in each load balancer. Can be applied to the front end listener or the back end server depending on the policy type.
---------	--

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Create Load Balancer Policy.
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Load Balancer Name	Name of the load balancer that allocate the created policy. Type : String	Yes
PolicyAttributes.member. N	Attributes of the created policy Type : String list	No
Policy Name	Name of created policy. The policy name must be unique for each load balancer. Type: String	Yes
Policy Type Name	A policy type that will be the base of the created policy. The policy type can be confirmed by Describe Load Balancer Policy Types API. LBA, however, cannot set codes with SSL Negotiation Policy Type. Type: String	Yes

Response	
Data Type	Create Load Balancer Policy Result

5-4) LBA API (Action)

Delete Load Balancer

Summary

Deletes the specified load balancer.

Must redo all the settings when creating a load balancer again. Cannot use the DNS name that is linked to the deleted load balancer. Once it is deleted, the name and the linked DNS records are erased and the traffic sent to that IP address will not reach the virtual server. It will not be the same DNS name even if a load balancer is created with the same load balancer name.

Must use the same account authority when creating a load balancer.

When the load balancer does not exist or if it is already deleted, then the Delete Load Balancer will be a success.

*The IP address of the deleted load balancer can be reused in other virtual servers.

Request

Request Method

GET

Path, Parameters, etc.

Specifies the parameters in Common Parameters and the below Request Parameters.
* The Action will specify Delete Load Balancer.

Header

None

Body

None

Request Parameters

Parameter Name

Description

Required

Load Balancer Name

The subjected load balancer name
Type : String

Yes

Response

Data Type

Delete Load Balancer Result

5-4) LBA API (Action)

Delete Load Balancer Listeners

Summary	Delete the listener of the designated port from the load balancer.
---------	--

Request

Request Method	GET
----------------	-----

Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Delete Load Balancer Listener.
------------------------	---

Header	None
--------	------

Body	None
------	------

Request Parameters

Parameter Name	Description	Required
LoadBalancerPorts.member.N	Port number of the listener that will be deleted (Load Balancer Port) Type : Integer list	Yes
Load Balancer Name	The subjected load balancer name Type : String	Yes

Response

Data Type	Delete Load Balancer Listeners Result
-----------	---------------------------------------

5-4) LBA API (Action)

Delete Load Balancer Policy

Summary	Delete the policy from the load balancer. The specified policy must not be valid in any listener.
---------	--

Request

Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Delete Load Balancer Policy.
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Load Balancer Name	The subjected load balancer name Type : String	Yes
PolicyNames.member.N	The policy name or the LBA sample policy name that was created for the load balancer. Type: String list	No
Policy Name	The policy name that will be deleted. Type: String	Yes

Response

Data Type	Delete Load Balancer Policy Result
-----------	------------------------------------

5-4) LBA API (Action)

Deregister Instances From Load Balancer

Summary	Separate the load balancer instance from the load balancer. There will be no traffic from the load balancer once it is separated.
---------	--

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Deregister Instances From Load Balancer.
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Instances.member.N	Load balancer instance that will be deleted. Type : Instance list (Refer to Instance)	Yes
Load Balancer Name	Name of the subjected load balancer Type : String	Yes

Response	
Data Type	Deregister Instances From Load Balancer Result

Response Elements	
Parameter Name	Description
Instance	Load balancer instance after it is deleted Type : Instance list (Refer to Instance)

5-4) LBA API (Action)

Attach Load Balancer To Subnets

Summary	Register and add the load balancer Subnet
---------	---

Request

Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Attach Load Balancer to Subnets.
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Load Balancer Name	Name of load balancer Type: String	Yes
Subnets	Subnet to be registered and added Type: String	Yes

Response

Data Type	Attach Load Balancer To Subnets Result
-----------	--

Response Elements

Parameter Name	Description
Subnets	List of Subnets that is currently registered Type: String list

5-4) LBA API (Action)

Detach Load Balancer From Subnets

Summary	Register and delete the load balancer Subnets
---------	---

Request

Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Attach Load Balancer to Subnets.
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Load Balancer Name	Name of load balancer Type: String	Yes
Subnets	Subnet to be registered and deleted Type: String	Yes

Response

Data Type	Attach Load Balancer To Subnets Result
-----------	--

Response Elements

Parameter Name	Description
Subnets	The list of Subnets that are currently registered Type: String list

5-4) LBA API (Action)

Describe Instance Health

Summary	Can check the state of the designated load balancer instance <Note> Must use the same account authority when creating the load balancer
---------	---

Request

Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Describe Instance Health.
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Instances.member.N	Load balancer instance Type : Instance list (Refer to Instance)	Yes
Load Balancer Name	The subjected load balancer name Type : String	Yes

Response

Data Type	Describe Instance Health Result
-----------	---------------------------------

Response Elements

Parameter Name	Description
Instance States	Status of the load balancer instance Type : Instance State list (Refer to Instance State)

5-4) LBA API (Action)

Describe Load Balancer Policies

Summary	<p>Return the detailed information of the policy.</p> <p>When specifying the load balancer name, the list of the policy information of that load balancer will be returned (the policy information when the policy name is specified). When the load balancer name is not specified, the list of the policy information of the sample will be returned (the policy information when the policy name is specified).</p> <p>The sample policy name will have LBA Sample- at the beginning of the name.</p>
---------	--

Request	
Request Method	GET
Path, Parameters, etc.	<p>Specifies the parameters in Common Parameters and the below Request Parameters.</p> <p>* The Action will specify Describe Load Balancer Policies.</p>
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Load Balancer Name	The load balancer name that is allocated to the created policy Type: String	Yes
PolicyNames.member.N	The policy name or the LBA sample name that is created to the load balancer Type: String list	No

Response	
Data Type	Describe Load Balancer Policies Result

Response Elements	
Parameter Name	Description
Policy Descriptions	List of policy information Type: Policy Description list (Refer to Policy Description)

5-4) LBA API (Action)

Describe Load Balancer Policy Types

Summary	Returns the meta information of the load balancer defined in LBA. The policy type that is returned under this action will use the policy created and applied to the load balancer under the Create Load Balancer Policy action.
---------	--

Request	
Request Method	GET
Path, Parameters, etc	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Describe Load Balancer Policy Types
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
PolicyTypeNames.member.N	Name of policy type When omitted, the policy type that is defined in LBA will be returned Type: String list	No

Response	
Data Type	Describe Load Balancer Policies Types Result

Response Elements	
Parameter Name	Description
Policy Type Descriptions	Information of the specified policy type When the policy type is not specified, all the policy types that were defined by LBA will be returned. Type: Policy Type Description list

5-4) LBA API (Action)

Describe Load Balancers

Summary	<p>Can check the setting information of the specified load balancer in detail. Can obtain all the load balancer information when the load balancer is not specified.</p> <p><Note></p> <p>Must use the same account authority when the load balancer was created.</p>
---------	---

Request

Request Method	GET
Path, Parameters, etc.	<p>Specifies the parameters in Common Parameters and the below Request Parameters.</p> <p>* The Action will specify Describe Load Balancers</p>
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
LoadBalancerNames.member.N	<p>Name of the subjected load balancer</p> <p>Type : String list</p>	Yes
Marker	<p>No support</p> <p>No need to specify</p> <p>Type : String</p>	No

Response

Data Type	Describe Load Balancers Result
-----------	--------------------------------

Response Elements

Parameter Name	Description
Load Balancer Descriptions	<p>Load balancer information</p> <p>Type :</p> <p>Load Balancer Description list (Refer to Load Balancer Description)</p>
Next Marker	<p>No support</p> <p>Type : String</p>

5-4) LBA API (Action)

Disable Availability Zones For Load Balancer

Summary	<p>Deletes the specified Availability Zone among the Availability Zones linked to the load balancer.</p> <p>There must be at least more than one Availability Zone registered in the load balancer. Once the Availability Zone is deleted, the balanced instance that is included in the Availability Zone will not be distributed to the traffic. Nothing will happen when trying to delete an Availability Zone that is linked to the load balancer.</p>
---------	--

Request

Request Method	GET
Path, Parameters, etc.	<p>Specifies the parameters in Common Parameters and the below Request Parameters.</p> <p>* The Action will specify Disable Availability Zones for Load Balancer</p>
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Availability Zones. member.N	The subjected Availability Zone Type : String list	Yes
Load Balancer Name	The subjected load balancer name Type : String	Yes

Response

Data Type	Disable Availability Zones For Load Balancer Result
-----------	---

Response Elements

Parameter Name	Description
Availability Zones	Availability Zone after operation Type : String list

5-4) LBA API (Action)

Enable Availability Zones For Load Balancer

Summary	Adds Availability Zones for load balancers. <Note> The added Availability Zone must exist in the same region as the created load balancer.
---------	--

Request

Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Enable Availability Zones for Load Balancer
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Availability Zones. member.N	Added Availability Zone Type : String list	Yes
Load Balancer Name	The subjected load balancer name Type : String	Yes

Response

Data Type	Enable Availability Zones For Load Balancer Result
-----------	--

Response Elements

Parameter Name	Description
Availability Zones	Availability Zone after operation Type : String list

5-4) LBA API (Action)

Register Instances With Load Balancer

Summary	<p>Add load balancer instances to load balancer.</p> <p>It will receive traffic from the load balancer once the instance is added. Instances that do not include Availability Zones that is not registered in the load balancer will change to an Out Of Service state. In this case, when the Availability Zone is added to the load balancer, the virtual server will change to an In Service state.</p> <p><Note></p> <p>The load balancer must be created in advance for this AP. Also, the same account authority when creating the load balancer must be used.</p>
---------	--

Request

Request Method	GET
Path, Parameters, etc	Specifies the parameters in Common Parameters and the below Request Parameters. With * The Action will specify Register Instances With Load Balancer
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Instances .member.N	Load balancer instance Type : Instance list (Refer to Instance)	Yes
Load Balancer Name	The subjected load balancer name Type : String	Yes

Response

Data Type	Register Instances With Load Balancer Result
-----------	--

Response Elements

Parameter Name	Description
Instances	The load balancer instance after operation Type : Refer to Instance

5-4) LBA API (Action)

Set Load Balancer Policies Of Listener

Summary	Link, update, and nullify the policies to the load balancer listener.
---------	---

Request

Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Set Load Balancer Policies Of Listener
Header	None
Body	None

Request Parameters

Parameter Name	Description	Required
Load Balancer Name	The subjected load balancer name Type : String	Yes
Load Balancer Port	The port number of the external load balancer applied to the policy Type: Integer	Yes
Policy Names.member.N	The policy name linked to the listener When an empty list is specified, the policy that is currently specified by the listener will be deleted Type: String list	Yes

Response

Data Type	Set Load Balancer Policies Of Listener Result
-----------	---

5-4) LBA API (Action)

Set Load Balancer Listener SSL Certificate

Summary	<p>Specify the listener for the SSL connection and set up the certificate for the SSL terminus.</p> <p>When the port certificate is already set up for the set load balancer, the certificate will be switched to this specified certificate.</p>
---------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Apply Security Groups to Load Balancer
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Load Balancer Name	The load balancer name that will be allocated to the created policy Type: String	Yes
Load Balancer Port	The port number for the external load balancer where the certificate will be set Type: Integer	Yes
SSL Certificate ID	The set certificate resource name Specifies the certificate resource name that is obtained when registering the server certificate beforehand (Upload Server Certificate For LBA). Type: String	Yes

Response	
Data Type	Set Load Balancer Listener SSL Certificate Result

5-4) LBA API (Action)

Upload Server Certificate For LBA

Summary	<p>Will upload the server certificate, secret key, and intermediate certificate. Must upload certificate with this API in advance when making the SSL the terminus at the load balancer.</p> <p>Will be a unique LBA API.</p>
---------	---

Request	
Request Method	GET
Path, Parameters, etc.	<p>Specifies the parameters in Common Parameters and the below Request Parameters.</p> <p>* The Action will specify Upload Server Certificate for LBA</p>
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Certificate Body	<p>A public key certificate for PEM encode format</p> <p>Type: String</p>	Yes
Certificate Chain	<p>Intermediate certificate</p> <p>To link the public key certificate of the PEM encode format</p> <p>Type: String</p>	No
Path	Not supported	No
Private Key	<p>The secret key of the PEM encode format</p> <p>Type: String</p>	Yes
Server Certificate Name	<p>Server certificate name</p> <p>Type: String</p>	Yes

Response	
Data Type	Upload Server Certificate For LBA Result

Response Elements	
Parameter Name	Description
Server Certificate Metadata	<p>Uploaded certificate information (excluding certificates, intermediate certificates, and secret keys)</p> <p>Type: Server Certificate Metadata</p>

5-4) LBA API (Action)

Delete Server Certificate For LBA

Summary	Deletes the uploaded server certificate, secret key, and intermediate certificate. Is a unique LBA API.
---------	---

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify Delete Server Certificate For LBA
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Server Certificate Name	The certificate name to be deleted Type: String	Yes

Response	
Data Type	Delete Server Certificate For LBA Result

5-4) LBA API (Action)

List Server Certificates For LBA

Summary	Obtains the list of the uploaded server certificate, secret key, and intermediate certificate. Is a unique LBA API.
---------	--

Request	
Request Method	GET
Path, Parameters, etc.	Specifies the parameters in Common Parameters and the below Request Parameters. * The Action will specify List Server Certificates For LBA
Header	None
Body	None

Request Parameters		
Parameter Name	Description	Required
Marker	No support	No
Max Items	No support	No
Path Prefix	No support	No

Response	
Data Type	List Server Certificates For LBA Result

Response Elements	
Parameter Name	Description
Is Truncated	Always will be false Type: Boolean
Marker	No support (Will always be an empty data)
Server Certificate Metadata List	Certificate List Type: Server Certificate Metadata

5-5) LBA API (Data Type)

Backend Server Description

Summary

A Data Type that indicates the load balance instance information. Used as a response for Describe Load Balancers.

Contents

Parameter Name	Description	Required
Instance Port	Port number of the load balance instance Type : Integer	No
Policy Names	Policy name Type : String list	No

5-5) LBA API (Data Type)

Health Check

Summary

Data Type that indicates the health check settings

Contents

Parameter Name	Description	Required
Healthy Threshold	Number of successive alive monitoring successes to decide that the load balance instance is Healthy Type : Integer	Yes
Interval	Monitoring intervals of the alive monitoring (seconds) Type : Integer	Yes
Target	Target of alive monitoring Will support HTTP and HTTPS. Setting examples: TTP:80/index.html Type : String	Yes
Time out	Time out of alive monitoring Type : Integer	Yes
Unhealthy Threshold	The successive times the alive monitoring fails until it decides that the load balance instance is Unhealthy. Type : Integer	Yes

5-5) LBA API (Data Type)

Instance

Summary	Data Type that indicates instance
---------	-----------------------------------

Contents

Parameter Name	Description	Required
Instance ID	Instance ID Type : String	No

5-5) LBA API (Data Type)

Instance State

Summary	Data Type that indicates the instance state
---------	---

Contents

Parameter Name	Description	
Description	Instance information Type : String	No
Instance ID	Instance ID Type : String	No
Reason Code	Instance obstacle information Type : String	No
State	Current instance state Will be either In Service or Out Of Service Type : String	No

5-5) LBA API (Data Type)

Listener

Summary	Data Type that indicates listener
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Contents

Parameter Name	Description	Required
Instance Port	Port number of load balancer instance Cannot change until the load balancer is deleted Type : Integer	Yes
Instance Protocol	Protocol name of the load balance instance Will specify either HTTP or HTTPS Type : String	No
Load Balancer Port	Port number of load balancer Type : Integer	Yes
Protocol	Protocol name of load balancer Will specify either HTTP or HTTPS Type : String	Yes
SSL Certificate ID	SSL certificate name Type : String	No

5-5) LBA API (Data Type)

Listener Description

Summary	Data Type that indicates listener
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Contents

Parameter Name	Description	Required
Listener	Listener Type : Refer to Listener	No
Policy Names	Policy name Type : String list	No

5-5) LBA API (Data Type)

Load Balancer Description

Summary	Data Type that shows the results of the Describe Load Balancers
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Contents

Parameter Name	Description	Required
Availability Zones	Availability Zone information Type : String list	No
Backend Server Descriptions	Load balance instance information Type : Backend Server Description list (Refer to Backend Server Description)	No
Canonical Hosted Zone Name	Hosted Zone name of the load balancer registered in Cloudn DNS Type : String	No
Canonical Hosted Zone Name ID	Hosted Zone ID of load balancer registered in Cloudn DNS Type : String	No
Created Time	Date and time the load balancer was created Type : Date Time	No
DNS Name	DNS name of load balancer Type : String	No
Health Check	Health Check information Type : Refer to Health Check	No
Instances	Instance information Type : Instance list (Refer to Instance)	No
Listener Descriptions	Listener information Type : Listener Description list (Refer to Listener Description)	No
Load Balancer Name	Load Balancer name Type : String	No
Policies	Policies Type : refer to Policies	No
Scheme	LB type Can only specify Internet-facing Type : String	No
Security Groups	Security group applied to load balancer (Cloud Stack security group ID) Type : String list	No
Source Security Group	Any security group registered in load balancer Type : Refer to Source Security Group	No
Subnet	No support Type : String list	No
VPC ID	No support Type : String	No

5-5) LBA API (Data Type)

Source Security Group

Summary

Data Type that indicates any instance security group registered in the load balancer.
Is the Compute security group.

Contents

Parameter Name	Description	Required
Group Name	Security group name Type : String	No
Owner Alias	Security group owner Type : String	No

5-5) LBA API (Data Type)

Policies

Summary	Data Type that indicate Policies
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Contents

Parameter Name	Description	Required
App Cookie Stickiness Policies	List of App Cookie Stickiness Policy created by Create App Cookie Stickiness Policy Type: App Cookie Stickiness Policy list	No
LB Cookie Stickiness Policies	List of LB Cookie Stickiness Policy created by Create App Cookie Stickiness Policy Type: LB Cookie Stickiness Policy list	No
Other Policies	List of policy names maintained by other sessions Type: String list	No

5-5) LBA API (Data Type)

Policies Attribute

Summary	Data Type that indicates Policy Attributes. Includes attributes and values according to policies.
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Contents

Parameter Name	Description	Required
Attribute Name	Attribute name linked to policies Type: String	No
Attribute Value	Attribute values linked to policies Type: String	No

5-5) LBA API (Data Type)

Policies Attribute Description

Summary

Data Type that indicates Policy Attribute Description.
Used to output attributes and attribute values of policies

Contents

Parameter Name	Description	Required
Attribute Name	Attribute name of policies Type: String	No
Attribute Value	Attribute values of policies Type: String	No

5-5) LBA API (Data Type)

Policy Description

Summary	Data Type indicating Policy Description
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Contents

Parameter Name	Description	Required
Policy Attribute Descriptions	List of policy attribute information Type: Policy Attribute Description list	No
Policy Name	Policy name of linked load balancer Type: String	No
Policy Type Name	Policy type name of linked load balancer Type: String	No

5-5) LBA API (Data Type)

Policy Type Description

Summary	Data Type indicating Policy Type Description
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Contents

Parameter Name	Description	Required
Description	Policy type descriptions Type: String	No
Policy Attribute Type Descriptions	Policy attribute information defined in LBA Type: Policy Attribute Type Description list	No
Policy Type Name	Policy type name Type: String	No

5-5) LBA API (Data Type)

Policy Attribute Type Description

Summary	<p>Data Type indicating Policy Attribute Type Description.</p> <p>Will show the attribute values that is specified when creating policies.</p> <p>Can confirm the code used for SSL when specifying SSL Negotiation Policy Type. (LBA, however, cannot change the code used at SSL by specifying SSL Negotiation Policy Type).</p> <p>The unit of the Cookie Expiration Period for the LB Cookie Stickiness Policy Type will be in seconds.</p>
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Contents

Parameter Name	Description	Required
Attribute Name	Attribute name linked to policy type Type: String	No
Attribute Type	Type of attribute (such as Boolean and Integer) Type: String	No
Cardinality	Number of attribute values The following are valid: <ul style="list-style-type: none"> • ONE : Must specify one value • ZERO_OR_ONE(0..1) : Can specify 0 or 1 value • ZERO_OR_MORE(0..*) : Optional (can specify several numbers over 0) • ONE_OR_MORE(1..*0) : Required (can specify several numbers over 1) Type: String	No
Default Value	Attribute default value Type: String	No
Description	Description of attributes Type: String	No

5-5) LBA API (Data Type)

App Cookie Stickiness Policy

Summary	Data Type indicating App Cookie Stickiness Policy
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Contents

Parameter Name	Description	Required
Cookie Name	Cookie name of application used to maintain the session Type: String	No
Policy Name	Policy name Must be unique within this load balancer Type: String	No

5-5) LBA API (Data Type)

LB Cookie Stickiness Policy

Summary	Data Type indicating LB Cookie Stickiness Policy
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Contents

Parameter Name	Description	Required
Cookie Expiration Period	Expiration period of cookie (seconds) The life time of this cookie will be either the life time of the browser (user agent) or the period specified by the user, which ever is shorter. Type: Long	No
Policy Name	Created policy name Must be unique within the load balancer Type: String	No

5-5) LBA API (Data Type)

Server Certificate Metadata

Summary	Data Type of server certificate
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Contents

Parameter Name	Description	Required
Arn	Resource name indicating the server certificate Type: String	Yes
Path	No support Type: String	No
Server Certificate ID	Resource name of server certificate (same value as Arn) Type: String	Yes
Server Certificate Name	Certificate name specified by the user Type: String	Yes
Upload Date	Time when the server certificate was uploaded. Will be displayed as YYYY-MM-DDThh:mm:ssZ and complies with ISO8601 Type: Date Time	No