

NTT Communications

Cloud<sup>n</sup>

# **DNS API Operation Manual**

**Ver.1.0**

Please refrain from secondary use such as distributing, reproducing, and transferring this document.

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# 1-1) Service Overview

This manual describes how to use Cloud<sup>n</sup> DNS.

Cloud<sup>n</sup> DNS is a dynamic DNS service linked with other Cloud<sup>n</sup> services and is equivalent to the Route 53 service offered by AWS.

By combining with Cloud<sup>n</sup> Load Balancer Advance, it can provide web services with large scale availability.

The main functions are as follows:

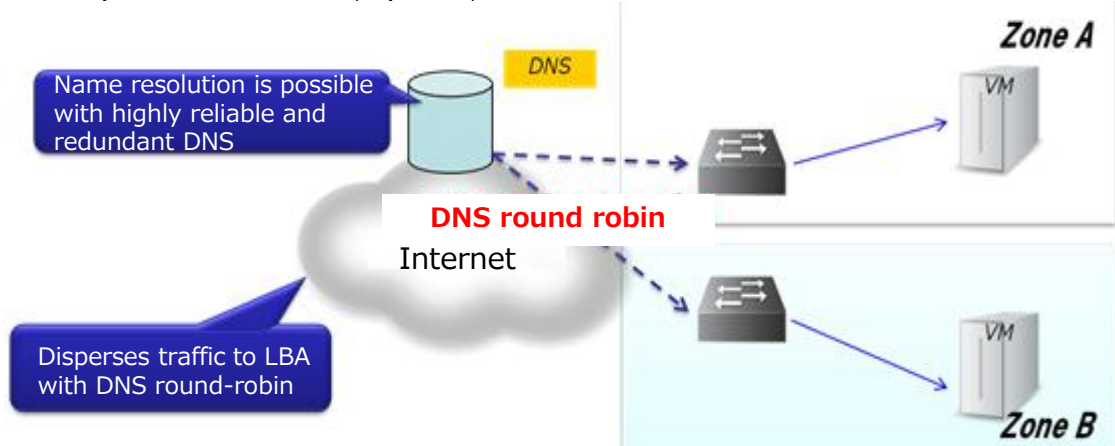
## ■ Dynamic DNS Service

- As a dynamic DNS service, it can create, edit, and delete host zones as well as create, edit, and delete resource records that are included in the host zone.
- A zone is a unit that the DNS domain manages and one domain is one zone.
- A max of 100 zones can be hosted within one account.
- Resource records are host information that is registered in DNS.
- A max of 10,000 resource records can be registered in one zone.
- A max of 1 million queries per month can be made to one zone. It does not support weighted round-robins.
- It does not support Latency Based Routing.
- It does not support zone apex, however, with the Cloud<sup>n</sup> Load Balancer Advance from the declared function of the alias target that is compatible to AWS Route 53 API, it can map the automatically allocated DNS name as host name and domain name (eg. [www.example.com](http://www.example.com)).
- It support wild card entries.
- The following are the resource record types it supports.

• A	•PTR
• AAAA	•SOA
• CNAME	•SPF
• MX	•SRV
• NS	•TXT

## ■ Amazon Route 53 Compatibility

- It provides the API for Amazon Route 53 API compatibility.
- The Amazon Route 53 API version is compliant with 2012-02-29.
- It is possible to create, update, and delete the zone and resource records via API.



## 1-2) Prerequisites

Please prepare the following before using our Cloud<sup>n</sup> DNS API.

### **Initiate DNS Services**

Please initiate DNS services from the Cloud<sup>n</sup> Portal. Please refer to *Cloud<sup>n</sup> Portal Operation Manual 3-1 To Start Up the Service*.

### **Shared API Access Key and Private Key in Cloud<sup>n</sup> Services**

Please confirm the API access key and private key that is necessary to use DNS API in the Cloud<sup>n</sup> Portal. Please refer to *Cloud<sup>n</sup> Portal Operation Manual 3-3 To Control API Access Key and Private Key*.

## 2-1) API Request Format

### 1

This service provides an API to create and delete zones as well as create and delete resource records for DNS services.

By using API, it is possible to operate the resources directly from our customer's programs. In addition, this API complies with Amazon Web Service Route53 compliant API(2012-02-29 Version). The following is the API Server (endpoint) API used to connect with this service.

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



The API request response is done with HTTPS. HTTP is not supported.

### 2

This explains how to create a API request.

DNS services requests are in REST format. For example, the “List Hosted Zone” API request to obtain a list of zones managed by this services is as follows.

```
GET/2012-02-29/hostedzone HTTP/1.1
date: Fri, 08 Mar 2013 10:47:41 GMT
X-Amzn-Authorization: AWS3-HTTPS AWSAccessKeyId=key,Algorithm=HmacSHA1,Signature=s1gnAture
host: dns-api.jp-e1.cloudn-service.com
```

The following is a description on how to create a request to Cloud<sup>n</sup> DNS API using the above example. The Cloud<sup>n</sup> DNS API request format is similar to general HTTP requests as:

Request Method	Path(?query string)	Protocol Version
	(Header)	
	(Header)	
	(...)	
	(Body)	

As a API request authorization is required, it is necessary to include the authorization value in the HTTP request. Use “X-Amzn-Authorization” extension HTTP headers to authorize Cloud<sup>n</sup> DNS API requests.

## 2-1) API Request Format

The following is the format for value (authorization value) to store the “X-Amzn-Authorization” extension HTTP header.

```
AWS3-HTTPS AWSAccessKeyId=<access key—>,Algorithm=<signature algorithm>,Signature=<signature value>
```

The Cloud<sup>n</sup> DNS API request authorization is carried out by the “access key” and the authorization value (Keyed-HMAC) for Keyed-Hash that was created by the paired “ private key”.

Enter the access key value that was obtained beforehand for the above <access key>. Enter the “HmacSHA256” or “HmacSHA1” that describes the Keyed-HMA algorithm for the signature algorithm. Enter the e-signature that was encoded with Base64 created by using the e-signature algorithm designated by the algorithm for the <signature value>.

The following is a description on how to create the <signature value> that is stored in the Signature. The process to create an e-signature is:

1. Decide the character sting for the e-signature
2. Decide the algorithm for the e-signature
3. Create the e-signature and Base64 encode

First, create the character string that will be included in the e-signature. The value that will be included in the Cloud<sup>n</sup> DNS API e-signature will be the value of the “Date” header encoded in UTF-8. In case the “x-amz-date” extension HTTP header is included in the request, please use this value. This means that the “Date” or “x-amz-date” must be included in the request.

The following chart shows the format for the “Date” header and the “x-amz-date” extension HTTP header.

Format Example	Format for strftime(3)	Description
Sun, 06 Nov 1994 08:49:37 GMT	"%a, %d %b %Y %R:%S GMT"	RFC1123
Sunday, 06-Nov-94 08:49:37 GMT	"%A, %d-%b-%y %R:%S GMT"	RFC1036
Sun Nov 6 08:49:37 1994	"%a %b %e %R:%S %Y"	ANSI C asctime()

When the “Date” header value (or the x-amz-date extension HTTP header value) is determined, decide the e-signature algorithm. The following is the algorithm that is supported by Cloud<sup>n</sup> DNS API.

Algorithm	Expressions used when including X-Amzn-Authorization
HMAC SHA256	HmacSHA256
HMAC SHA1	HmacSHA1

## 2-1) API Request Format

For the e-signature character string (Date or x-amz-date header value), create the e-signature with the algorithm decided with the private key obtained beforehand. Encode the e-signature with Base64. In other words, the format will be:

```
Signature value = Base64 (Algorithm ((Date header value), "private key") )
```

Allocate the "access key", "algorithm" and the created "signature value" in the designated location of the "X-Amzn-Authorization" header (please refer to the following example). IT will become a request when including in the "X-Amzn-Authorization" request header.

```
GET/2012-02-29/hostedzone HTTP/1.1
```

```
date: Fri, 08 Mar 2013 10:47:41 GMT
```

```
X-Amzn-Authorization: AWS3-HTTPS AWSAccessKeyId=key,Algorithm=HmacSHA1,Signature=s1gnAture
```

```
host: dns-api.jp-e1.cloudn-service.com
```

Please be aware that depending on the API methods, there are times when the XML is attached to the Body in the request, however, it is not required when creating a "X-Amzn-Authorization" header used for the request authorization.



## 3-1) To Register DNS Information

The following illustrates the flow of Cloud<sup>n</sup> DNS service using Cloud<sup>n</sup> DNS API. The basic operational flow using Cloud<sup>n</sup> DNS API is\*

1. Create and register information using Cloud<sup>n</sup> DNS API
2. Confirm the registration using Cloud<sup>n</sup> DNS API

The following explains the flow from creating and registering a zone, "example.com" and the confirmation of the SOA records.

The API method used to create a zone, "CreateHostedZone" and attaching XML to the Body. With the method explained beforehand, enter the "X-Amzn-Authorization" header that was created and issue a request using the HTTP "POST" method. (Please refer to *DNS API Reference* for details. The following is the overall image of the request:

Header	<pre>POST /2012-02-29/hostedzone HTTP/1.1 date: Mon, 11 Mar 2013 10:33:58 GMT x-amzn-authorization: AWS3-HTTPS AWSAccessKeyId=Samp1eKey,Algorithm=HmacSHA256,Signature=Sy0me1des4u host: dns-api.jp-e1.cloudn-service.com content-length: 283</pre>
Body (XML)	<pre>&lt;CreateHostedZoneRequest&gt;   &lt;Name&gt;example.com&lt;/Name&gt;   &lt;CallerReference&gt;0caaf24ab1a0c33440c06afe99df986365b0781f&lt;/CallerReference&gt;   &lt;HostedZoneConfig&gt;     &lt;Comment&gt;'example.com' is created at 'Mon, 11 Mar 2013 10:33:58 GMT'&lt;/Comment&gt;   &lt;/HostedZoneConfig&gt; &lt;/CreateHostedZoneRequest&gt;</pre>

## 3-1) To Register DNS Information

When the request is accepted, the following response will be sent.

```
date: Mon, 11 Mar 2013 10:33:07 GMT
etag: "e48aa57343bdb5a3a15fbe1f4f2aaab6"
cache-control: max-age=0, private, must-revalidate
x-request-id: 29575845f3c8044cf10a138db37a7c6b
x-runtime: 0.030656
x-rack-cache: invalidate, pass
x-frame-options: SAMEORIGIN
status: 201
content-length: 998
connection: close
content-type: text/xml; charset=utf-8

<?xml version="1.0" encoding="UTF-8"?>
<CreateHostedZoneResponse xmlns="https://route53.amazonaws.com/doc/2012-02-29/">
  <HostedZone>
    <Id>/hostedzone/99E9999999999</Id> 1
    <Name>example.com</Name>
    <CallerReference>0caaf24ab1a0c33440c06afe99df986365b0781f</CallerReference>
    <Config>
      <Comment>example.com is created at Mon, 11 Mar 2013 10:33:04 GMT</Comment>
    </Config>
    <ResourceRecordSetCount>2</ResourceRecordSetCount>
  </HostedZone>
  <ChangeInfo>
    <Id>/change/cafedeadeaf</Id> 2
    <Status>PENDING</Status>
    <SubmittedAt>2013-03-11T10:33:07.545Z</SubmittedAt>
  </ChangeInfo>
  <DelegationSet>
    <NameServers>
      <NameServer>ns-05.dns.jp-e1.cloudn-service.com</NameServer> 3
      <NameServer>ns-06.dns.jp-e1.cloudn-service.com</NameServer>
      <NameServer>ns-07.dns.jp-e1.cloudn-service.com</NameServer>
    </NameServers>
  </DelegationSet>
</CreateHostedZoneResponse>
```

The ID in (1) will be the designating ID when conducting operations such as creating and registering zones in the future.

The ID in (2) "ChangeInfo" Tag is the ticket to check whether it is reflected in the DNS server as shown in (1) after the request is accepted. Check whether it is reflected in DNS by entering "GetChange" API.

In addition, the value in "NameServer" Tag that is within the response (3) will be the Authoritative DNS that manages the requested zone.

## 3-1) To Register DNS Information

“GetChange” designates “GET” in the HTTP request method and will be “/2012-02-29/change/<id>” in the Request Path.

In the above example, the Request Path will be “/2012-02-29/change/cafedeadeadbeaf”.



Please be aware that if you use the ID Tag value as it is in “CreateHostedZone” response, “change” will overlap.

The following is the “GetChange” request.

```
GET /2012-02-29/change/cafedeadeadbeaf HTTP/1.1
date: Tue, 12 Mar 2013 00:57:53 GMT
x-amzn-authorization: AWS3-HTTPS
AWSAccessKeyId=,Algorithm=HmacSHA256,Signature=S1gNatyaaaadayou=
host: dns-api.jp-e1.cloudn-service.com
```

The following is the “GetChange” API response.

```
date: Tue, 12 Mar 2013 00:57:55 GMT
etag: "027a3c2600d368c95d3bb38c1c615629"
cache-control: max-age=0, private, must-revalidate
x-request-id: 209a1abaaa7e737d3f4b696e0460c9d5
x-runtime: 0.009997
x-rack-cache: miss
x-frame-options: SAMEORIGIN
status: 200
content-length: 285
connection: close
content-type: text/xml; charset=utf-8

<?xml version="1.0" encoding="UTF-8"?>
<GetChangeResponse xmlns="https://route53.amazonaws.com/doc/2012-02-29/">
  <ChangeInfo>
    <Id>cafedeadeadbeaf</Id>
    <Status>INSYNC</Status>
    <SubmittedAt>2013-03-11T10:33:07.000Z</SubmittedAt>
  </ChangeInfo>
</GetChangeResponse>
```

④

If the “Status” Tag value is “INSYNC” as shown in (4), it will mean that the registration has been reflected in the authoritative server shown in (3). In case it is “PENDING”, please wait until it is finalized as it means that the information has not be reflected completely in the authoritative server.

## 3-2) To Check the DNS Information

Next, check the registration of the “example.com” resource record using API. Use “ListResourceRecordSets” to check the resource records.

“ListResourceRecordSets” can be executed by issuing a GET method to Request Path “/2012-02-29/hostedzone/<zone\_id>/rrset”. In this example, the Request Path is “/2012-02-29/hostedzone/99E9999999999999/rrset”.

The following is the response for “ListResourceRecordSets”. { (1) is the registered resource record list.}

```
date: Mon, 11 Mar 2013 11:34:34 GMT
etag: "aa4c7518de1091275f25c138cf7512e3"
cache-control: max-age=0, private, must-revalidate
x-request-id: 810a84b3e53b2a2d6949c96db0e5a789
x-runtime: 0.015080
x-rack-cache: miss
x-frame-options: SAMEORIGIN
status: 200
content-length: 1209
connection: close
content-type: text/xml; charset=utf-8

<?xml version="1.0" encoding="UTF-8"?>
<ListResourceRecordSetsResponse xmlns="https://route53.amazonaws.com/doc/2012-02-29/">
  <ResourceRecordSets>
    <ResourceRecordSet>
      <Name>example.com.</Name>
      <Type>SOA</Type>
      <TTL>60</TTL>
      <ResourceRecords>
        <ResourceRecord>
          <Value>ns-05.dns.jp-e1.cloudn-service.com. root.cloudn2.net. 1 7200 900 1209600 86400</Value>
        </ResourceRecord>
      </ResourceRecords>
    </ResourceRecordSet>
    <ResourceRecordSet>
      <Name>example.com.</Name>
      <Type>NS</Type>
      <TTL>60</TTL>
      <ResourceRecords>
        <ResourceRecord>
          <Value>ns-05.dns.jp-e1.cloudn-service.com.</Value>
        </ResourceRecord>
        <ResourceRecord>
          <Value>ns-06.dns.jp-e1.cloudn-service.com.</Value>
        </ResourceRecord>
        <ResourceRecord>
          <Value>ns-07.dns.jp-e1.cloudn-service.com.</Value>
        </ResourceRecord>
      </ResourceRecords>
    </ResourceRecordSet>
  </ResourceRecordSets>
  <IsTruncated>false</IsTruncated>
  <MaxItems>100</MaxItems>
</ListResourceRecordSetsResponse>
```

①

## 3-2) To Check the DNS Information

Finally, use dig(1) to check that the SOA record is registered in the authoritative server.

The authoritative server that registers zones and records can confirm the responses for "ListHostedZone" and "CreateHostedZone".

The following will be the examples for this document:

- ns-05.dns.jp-e1.cloudn-service.com
- ns-06.dns.jp-e1.cloudn-service.com
- ns-07.dns.jp-e1.cloudn-service.com

The following shows how to check the SOA records for example.com by entering "ns-05.dns.jp-e1.cloudn-service.com" in dig(1).

```
% dig @ns-05.dns.jp-e1.cloudn-service.com -t soa example.com +norec

; <<>> DiG 9.7.6-P1 <<>> @ns-05.dns.jp-e1.cloudn-service.com -t soa example.com +norec
; (1 server found)
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 49083
;; flags: qr aa; QUERY: 1, ANSWER: 1, AUTHORITY: 3, ADDITIONAL: 0

;; QUESTION SECTION:
;example.com.                IN                SOA

;; ANSWER SECTION:
example.com. 60 IN SOA ns-05.dns.jp-e1.cloudn-service.com. root.cloudn2.net. 1 7200 900
1209600 86400

;; AUTHORITY SECTION:
example.com. 60          IN          NS          ns-06.dns.jp-e1.cloudn-service.com.
example.com. 60          IN          NS          ns-07.dns.jp-e1.cloudn-service.com.
example.com. 60          IN          NS          ns-05.dns.jp-e1.cloudn-service.com.

;; Query time: 5 msec
;; SERVER: 153.128.36.7#53(153.128.36.7)
;; WHEN: Tue Mar 12 11:52:40 2013
;; MSG SIZE rcvd: 174
```

## 4-1) List of DNS API

This is the DNS API reference.

API	Name	Description
	POST CreateHostedZone	This action creates a new hosted zone. The request body must include an XML document with a CreateHostedZoneRequest element.
	GET GetHostedZone	This action retrieves information about a hosted zone.
	DELETE DeleteHostedZone	This action deletes a hosted zone.
	GET ListHostedZones	<p>This action retrieves a list of your hosted zones. The response to this request includes a HostedZones element with zero, one, or multiple HostedZone child elements.</p> <ul style="list-style-type: none"> <li>•You can use the Marker parameter to control the hosted zone that the list begins with.</li> <li>•You can control the length of the page that is displayed by using the MaxItems parameter.</li> </ul> <p>Ex: maxitems=1&amp;marker=" a Hostedones ID" The response includes the HostedZones you want to know.</p>
	POST ChangeResourceRecordSets	Use this action to create or change your authoritative DNS information. The request body must include an XML document with a ChangeResourceRecordSetsRequest element.
	GET ListResourceRecordSets	The action retrieves a specified number of resource record sets in order, beginning at a position specified by the name and type elements.
	GET GetChange	<p>This action returns the current status of a change batch request. "POST CreateHostedZone", "POST ChangeResourceRecordSets"</p> <p>The current status of the change batch request:</p> <ul style="list-style-type: none"> <li>-PENDING indicates that the changes in this request have not replicated to all Cloud<sup>n</sup> DNS servers.</li> <li>-INSYNC indicates that the changes have replicated to all Cloud<sup>n</sup> DNS servers.</li> </ul>

## 4-2) Shared DNS API Information

This is API Server (End Point)

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

This section lists the common HTTP headers that Cloud<sup>n</sup> DNS uses in REST requests.

Common Request Header	
Header Name	Description
X-Amzn-Authorization	The information required for request authentication. This includes <i>signature</i> using your Secret Access Key and an encryption algorithm.
Content-Length	Length of the message (without the headers) (Byte). Required for PUT request and if the request body itself contains information.
Content-Type	The content type of the resource. Required for POST and PUT requests.
Date	The date used to create the signature that is included in the X-Amzn-Authorization header. Required if you do not provide the x-amz-date header.
Host	To set the value is 100-continues means not to send Body unless returning Acknowledgement. Not to send Body if Response header receives reject message. Valid Values: 100-continue
x-amz-date	The date used to create the signature that is included in the X-Amzn-Authorization header. Required if you do not provide the Date header.

Common Response Header	
Header Name	Description
x-amz-request-id	Response as Request ID.

## 4-3) DNS API (Zone Operation)

### POST CreateHostedZone

Description	<p>This action creates a new hosted zone.</p> <p>To create a new hosted zone, send a POST request to the 2012-12-12/hostedzone resource. The request body must include an XML document with a CreateHostedZoneRequest element. The response returns the CreateHostedZoneResponse element that contains metadata about the hosted zone.</p> <p>&lt;Important&gt; You cannot create a hosted zone for a top-level domain (TLD).</p> <p>Cloud<sup>n</sup> DNS automatically creates a default SOA record and three NS records for the zone. The NS records in the hosted zone are the name servers you give your registrar to delegate your domain to.</p> <p>When you create a zone, its initial status is PENDING. The status of the zone changes to INSYNC when the NS and SOA records are available on all Cloud<sup>n</sup> DNS servers.</p>
-------------	--

Request					
Request Method	POST				
Path,Parameters, etc	Request path: /2012-02-29/hostedzone				
Header	For more information, see Common Request Header				
Body	Type	XML			
	XML elements	Node	Description	Children	Required
		<i>CreateHostedZoneRequest</i>	A complex type containing the hosted zone request information.	Name, CallerReference, HostedZoneConfig	Yes
		<i>Name</i>	The name of the domain.		Yes
		<i>CallerReference</i>	A unique string that identifies the request		Yes
		<i>HostedZoneConfig</i>	-	Comment	No
<i>Comment</i>	Any comments that you want to include about the hosted zone.		No		



## 4-3) DNS API (Zone Operation)

Response				
Response Header	For more information, see Common Request Header.			
Response (Body)	Type	XML		
	XML elements	<b>Node</b>	<b>Description</b>	<b>Children</b>
		CreateHostedZoneResponse	-	HostedZone, ChangeInfo, DelegationSet
		HostedZone	-	Id, Name, CallerReference, Config
		Id	The ID of the hosted zone.	
		Name	The name of the domain.	
		CallerReference	A unique string that identifies the request to create the hosted zone.	
		Config		Comment
		Comment	The comment included in the CreateHostedZoneRequest element.	
		ResourceRecordSetCount	The number of resource record sets in the hosted zone.	
		ChangeInfo	-	Id, Status, SubmittedAt
		Id	The ID of the request.	
		Status	The current state of the request. PENDING indicates that this request has not yet been applied on all Cloudn DNS servers. INSYNC indicates that this request has been applied on all Cloudn DNS servers.	
		SubmittedAt	The date and time the change request was submitted	
		DelegationSet	-	NameServers
		NameServers	-	NameServer
NameServer	Identifies a name server that is authoritative for your domain.			

## 4-3) DNS API (Zone Operation)

### GET GetHostedZone

Description	To retrieve information about a hosted zone, send a GET request to the 2012-12-12/hostedzone/Cloud <sup>n</sup> <i>hosted zone ID</i> resource.
-------------	---

#### Request

Request Method	GET	
Path,Parameters, etc	HostedZone ID	The hosted zone ID in the HostedZone element . (Request Path:/2012-02-29/hostedzone/<HostedZoneID>)
Header	See <b>Common Request Header</b>	
Body	None	

#### Response

Response Header	See <b>Common Response Header</b>			
Response (Body)	Type	XML		
	XML elements	Node	Description	Children
		GetHostedZoneResponse	-	HostedZone, DelegationSet
		HostedZone	-	Id, Name, CallerReference, Config
		Id	The ID of the hosted zone.	
		Name	The name of the domain.	
		CallerReference	A unique string that identifies the request to create the hosted zone.	
		Config		Comment
		Comment	The comment included in the CreateHostedZoneRequest element.	
		ResourceRecordSetCount	The number of resource record sets in the hosted zone.	
		DelegationSet	-	NameServers
		NameServers	-	NameServer
NameServer	A complex type that lists the authoritative name servers for the hosted zone.			

## 4-3) DNS API (Zone Operation)

### DELETE DeleteHostedZone

Description	<p>This action deletes a hosted zone. To delete a hosted zone, send a DELETE request to the 2012-12-12/hostedzone/Cloud<sup>n</sup> HostedZoneID resource.</p> <p>&lt;Important&gt;</p> <p>If your hosted zone contains resource records other than the default SOA record and NS records, you must delete those resource records before you can delete your hosted zone. If you try to delete a hosted zone that contains resource records other than the default records, Cloud<sup>n</sup> DNS will deny your request with a HostedZoneNotEmpty error.</p>
-------------	---

#### Request

Request Method	DELETE	
Path,Parameters, etc	HostedZoneID	The hosted zone ID in the HostedZone element .(Request Path:/2012-02-29/hostedzone/<HostedZoneID>)
Header	See <b>Common Request Header</b>	
Body	None	

#### Response

Response Header	See <b>Common Request Header</b>			
Response (Body)	Type	XML		
	XML elements	Node	Description	Children
		DeleteHostedZoneResponse	-	ChangeInfo
		ChangeInfo	-	Id, Status, SubmittedAt
		Id	The ID of the request.	
		Status	The current state of the request. PENDING indicates that this request has not yet been applied on all Cloud <sup>n</sup> DNS servers. INSYNC indicates that this request has been applied on all Cloud <sup>n</sup> DNS servers.	
SubmittedAt	The date and time the change request was submitted			

# 4-3) DNS API (Zone Operation)

## GET ListHostedZone

Description	<p>To retrieve a list of your hosted zones, send a GET request to the 2012-12-12/hostedzone resource. The response to this request includes a HostedZones element with zero, one, or multiple HostedZone child elements. By default, the list of hosted zones is displayed on a single page.</p> <ul style="list-style-type: none"> <li>·You can use the Marker parameter to control the hosted zone that the list begins with.</li> <li>·You can control the length of the page that is displayed by using the MaxItems parameter.</li> </ul> <p>Ex: maxitems=1&amp;marker=" a Hostedones ID" The response includes the HostedZones you wants to know.</p>
-------------	---

### Request

Request Method	GET		
Path,Parameters, etc	Request path: "/2012-02-29/hostedzone"		
	Name	Description	Required
	marker	If you have more hosted zones than the value of maxitems, ListHostedZones returns only the first maxitems hosted zones.	No
	maxitems	The maximum number of hosted zones to be included in the response body for this request. Default: 100	No
Header	See <b>Common Request Header</b>		
Body	None		

### Response

Response Header	See <b>Common Response Header</b>			
Response (Body)	Type	XML		
	XML elements	Node	Description	Children
		ListHostedZoneResponse	-	Marker, HostedZones, MaxItems, IsTruncated, NextMarker
		HostedZones	-	HostedZone
		HostedZone	-	Id, Name, CallerReference, Config, ResourceRecordSetCount
		Id	The ID of the hosted zone.	
		Name	The name of the domain.	
		CallerReference	A unique string that identifies the request to create the hosted zone.	
		Config		Comment
		Comment	The comment included in the CreateHostedZoneRequest element.	
		ResourceRecordSetCount	The number of resource record sets in the hosted zone.	
		Marker	Marker is the value that you specified for the marker parameter in the request that produced the current response.	
		IsTruncated	A flag indicating whether there are more hosted zones to be listed.	
		NextMarker	If IsTruncated is true, the value of NextMarker identifies the first hosted zone in the next group of maxitems hosted zones.	
MaxItems	The value that you specified for the maxitems parameter in the call to ListHostedZones that produced the current response.			

# 4-4) DNS API (Resource Record Operation)

## POST ChangeResourceRecordSets

Description	<p>Use this action to create or change your authoritative DNS information.</p> <p>To use this action, send a POST request to the /2012-02-29/hostedzone/&lt;Cloud<sup>n</sup> HostedZone ID&gt;/rrset resource.</p> <p>The request body must include an XML document with a ChangeResourceRecordSetsRequest element.</p> <p>&lt;Important&gt;</p> <p>Due to the nature of transactional changes, you cannot delete the same resource record set more than once in a single change batch. In addition, if you submit the same change batch request more than once, Cloud<sup>n</sup> DNS returns an InvalidChangeBatch error.</p> <p>In response to a ChangeResourceRecordSets request, your DNS data is changed on all Cloud<sup>n</sup> DNS servers. Initially, the status of a change is PENDING. This means the change has not yet propagated to all the authoritative Cloud<sup>n</sup> DNS servers. When the change is propagated to all hosts, the change returns a status of INSYNC.</p> <p>Note the following limitations on a ChangeResourceRecordSets request:</p> <ul style="list-style-type: none"> <li>•A request cannot contain more than 100 Change elements.</li> <li>•A request cannot contain more than 1000 ResourceRecord elements.</li> <li>•The sum of the number of characters (including spaces) in all Value elements in a request cannot exceed 32,000 characters.</li> </ul>
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### Request

Request Method	POST				
Path, Parameters, etc	HostedZoneId	The hosted zone ID in the HostedZone element . Request Path: /2012-02-29/hostedzone/<HostedZoneID>/rrset			
Header	See <b>Common Request Header</b>				
Body	Type	XML			
	XML elements	<b>Node</b>	<b>Description</b>	<b>Children</b>	<b>Required</b>
		ChangeResourceRecordSetsRequest	-	ChangeBatch	Yes
		ChangeBatch	-	Comment, Changes	Yes
		Comment	Any comments		No
		Changes	-	Change	Yes
		Change	-	Action, ResourceRecordSet	Yes
		Action	The action to perform. "CREATE", "DELETE"		Yes
		ResourceRecordSet	-	Name, Type, TTL, AliasTarget, ResourceRecords	Yes
		Name	The name of the domain you want to perform the action on.(FQDN)		Yes
Type		The DNS record type. Valid values: A   AAAA   CNAME   MX   NS   PTR   SOA   SPF   SRV   TXT		Yes	
TTL	The resource record cache time to live (TTL), in seconds.		Yes		

# 4-4) DNS API (Resource Record Operation)

Request					
Body	Type	XML			
	XML elements	Node	Description	Children	Required
		Alias Target	Required for Alias Resource Record Sets.	HostedZoneId, DNSName	Yes
		HostedZoneId	Specify the value of the hosted zone ID for LBA. Required for Alias Resource Record Sets.		Yes
		DNSName	Specify the external DNS name associated with LBA. Required for Alias Resource Record Sets.		Yes
		ResourceRecords	Required for All Except Alias Resource Record Sets.	ResourceRecord	Yes
		ResourceRecord	Required for All Except Alias Resource Record Sets.	Value	Yes
		Value	The current or new DNS record value. Required for All Except Alias Resource Record Sets..		Yes

## 4-4) DNS API (Resource Record Operation)

Response				
Response Header	See <b>Common Response Header</b>			
Response (Body)	Type	XML		
	XML elements	Node	Description	Childres
		ChangeResourceRecord SetsResponse	-	ChangeInfo
		ChangeInfo	-	Id, Status, SubmittedAt
		Id	The ID of the request.	
		Status	The current state of the request. PENDING indicates that this request has not yet been applied on all Cloudn DNS servers. INSYNC indicates that this request has been applied on all Cloud <sup>n</sup> DNS servers.	
		SubmittedAt	The date and time the change request was submitted.	

# 4-4) DNS API (Resource Record Operation)

## GET ListResourceRecordSets

### Description

To list your resource record sets, send a GET request to the 2012-12-12/hostedzone/<Cloud<sup>n</sup> hosted zone ID>/rrset resource.

The action retrieves a specified number of resource record sets in order, beginning at a position specified by the name and type elements.

The action sorts results first by DNS name (with the labels reversed, for example com.ntt.www), and second by the record type.

You can use the name and type elements to adjust the beginning position of the list of resource record sets returned.

<Note>

This action returns the most current version of the records. This includes records that are PENDING.

## Request

Request Method	GET		
Path,Parameters, etc	HostedZone D	The hosted zone ID in the HostedZone element . Request Path: "/2012-02-29/hostedzone/<HostedZoneID>/rrset"	
	Name	Description	Required
	name	The first name in the lexicographic ordering of domain names to be retrieved in the response	No
	type	The type of resource record set to begin the record listing from.	No
	maxitems	The maximum number of resource records sets to include in the response body for this request. Default: 100	No
Header	See <b>Common Request Header</b>		
Body	None		



# 4-4) DNS API (Resource Record Operation)

Response				
Response Header	See <b>Common Response Header</b>			
Response (Body)	Type	XML		
	XML elements	<b>Node</b>	<b>Description</b>	<b>Children</b>
		ListResourceRecordSets Response	-	ResourceRecordSets, IsTruncated, MaxItems, NextRecordName, NextRecordType
		ResourceRecordSets	-	ResourceRecordSet
		ResourceRecordSet	-	Name, Type, TTL, ResourceRecords
		Name	The name of the domain.	
		Type	The resource record set type the record listing begins from.	
		TTL	TTL	
		ResourceRecords	-	ResourceRecord
		ResourceRecord	-	Value
		Value	Content for the resource record.	
		IsTruncated		
		MaxItems	The maximum number of records you requested.	
		NextRecordName	This element is present only if IsTruncated is true.	
NextRecordType				

# 4-4) DNS API (Resource Record Operation)

## GET GetChange

Description	<p>This action returns the current status of a change batch request. "POST CreateHostedZone", "POST ChangeResourceRecordSets"</p> <p>Get request to "/2012-02-29/change/&lt;change_id&gt;"</p> <p>The status is one of the following values:          PENDING indicates that the changes in this request have not replicated to all Cloud<sup>n</sup>DNS servers. This is the initial status of all change batch requests.          INSYNC indicates that the changes have replicated to all Cloud<sup>n</sup>DNS servers.</p>
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Request		
Request Method	GET	
Path,Parameters, etc	Change ID	Request Path : "/2012-02-29/change/<change_id>"
Header	See <b>Common Request Header</b>	
Body	None	

Response				
Response Header	See <b>Common Response Header</b>			
Response (Body)	Type	XML		
	XML elements	Node	Description	Children
		GetChangeResponse	-	ChangeInfo
		ChangeInfo	-	Id, Status, SubmittedAt
		Id	The ID of the change batch.	
		Status	The current status of the change batch request: PENDING indicates that the changes in this request have not replicated to all Cloud <sup>n</sup> DNS servers. INSYNC indicates that the changes have replicated to all Cloud <sup>n</sup> DNS servers.	
SubmittedAt	The date and time that the change batch request was submitted.			