

# Elastic Load Balance

## API Reference

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# 1 Before You Start

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## 1.1 Overview

Welcome to *Elastic Load Balance API Reference*. ELB distributes incoming traffic across backend servers based on the listening rules you define. ELB expands the service capabilities of applications and improves their availability by eliminating single points of failure (SPOFs).

This document describes how to use application programming interfaces (APIs) to perform operations on load balancers and associated resources, such as creating, querying, deleting, and updating a load balancer. For details about all supported operations, see [API Overview](#).

If you plan to access load balancers and associated resources through an API, ensure that you are familiar with ELB concepts. For details, see section "Service Overview."

## 1.2 API Calling

ELB supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS. For details about API calling, see [Calling APIs](#).

## 1.3 Endpoints

An endpoint is the **request address** for calling an API. Endpoints vary depending on services and regions. For the endpoints of ELB, see [Regions and Endpoints](#).

## 1.4 Notes and Constraints

- The number of load balancers and associated resources that you can create are determined by your quotas. To view or increase the quota, see section "What Is Quota?" in the *Elastic Load Balance User Guide*.
- For more constraints, see API description.



## 1.5 Concepts

- **Account**

An account is created upon successful registration. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity, which should not be used directly to perform routine management. For security purposes, create Identity and Access Management (IAM) users and grant them permissions for routine management.
- **User**

An IAM user is created by an account in IAM to use cloud services. Each IAM user has its own identity credentials (password and access keys).

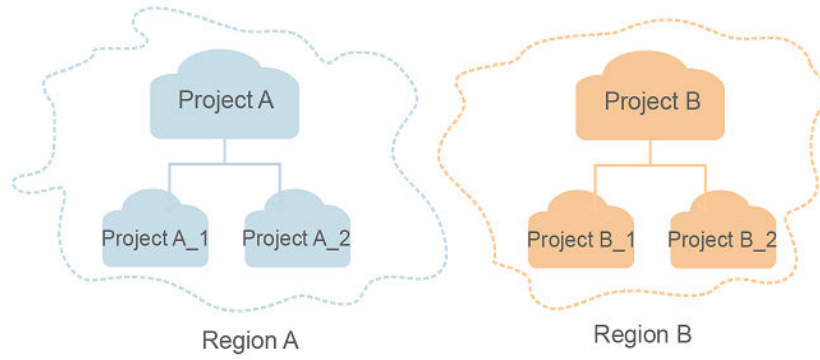
API authentication requires information such as the account name, username, and password.
- **Region**

A region is a geographic area in which cloud resources are deployed. Availability zones (AZs) in the same region can communicate with each other over an intranet, while AZs in different regions are isolated from each other. Deploying cloud resources in different regions can better suit certain user requirements or comply with local laws or regulations.
- **AZ**

An AZ comprises of one or more physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Computing, network, storage, and other resources in an AZ are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.
- **Project**

A project corresponds to a region. Default projects are defined to group and physically isolate resources (including computing, storage, and network resources) across regions. Users can be granted permissions in a default project to access all resources under their accounts in the region associated with the project. If you need more refined access control, create subprojects under a default project and create resources in subprojects. Then you can assign users the permissions required to access only the resources in the specific subprojects.

**Figure 1-1** Project isolation model



# 2 API Overview

A combination of these types of APIs allows you to use all functions provided by ELB. [Table 2-1](#) describes the APIs provided by ELB.

**Table 2-1** ELB APIs

Type	Resource	Description
Dedicated load balancer APIs	Load balancer	Creates, updates, deletes a load balancer, shows the details of a load balancer, lists load balancers, and queries the status tree for a load balancer.
	Certificate	Creates, modifies, and deletes a certificate, and lists certificates.
	Security policy	Adds, modifies, and deletes a security policy, shows the details of a security policy, and lists security policies.
	IP address group	Configures, modifies, and disables an IP address group, shows the details of an IP address group, and lists IP address groups.
	Listener	Adds, modifies, and deletes a listener, shows the details of a listener, and lists listeners.
	Backend server group	Adds, modifies, and deletes a backend server group, shows the details of a backend server group, and lists backend server groups.
	Backend server	Adds, modifies, and deletes a backend server, shows the details of a backend server, and lists backend servers.
	Health check	Configures, modifies, and disables a health check, shows the details of a health check, and lists health checks.

Type	Resource	Description
	Forwarding policy	Adds, updates, and deletes a forwarding policy, shows the details of a forwarding policy, lists forwarding policies, and updates forwarding policy priorities.
	Forwarding rule	Adds, modifies, and deletes a forwarding rule, shows the details of a forwarding rule, and lists forwarding rules.
Classic load balancer APIs	Load balancer	Creates, modifies, and deletes a load balancer, delete a public network load balancer, shows the details of a load balancer, and lists load balancers.
	Listener	Adds, modifies, and deletes a listener, shows the details of a listener, and lists listeners.
	Health check	Configures, modifies, and disables a health check, and shows the details of a health check.
	Backend server	Adds, queries, and removes backend ECSs.
	Quota	Queries the load balancer and listener quotas.
	Certificate	Creates, modifies, and deletes a certificate, shows details of a certificate, and lists certificates.
	Job status	Queries the job status.
	Monitoring metrics	Queries monitoring metrics of load balancers.
Enhanced load balancer APIs	Load balancer	Creates, updates, deletes a load balancer, shows the details of a load balancer, lists load balancers, and queries the status tree for a load balancer.
	Listener	Adds, updates, and deletes a listener, shows the details of a listener, and lists listeners.
	Backend server group	Adds, updates, and deletes a backend server group, shows the details of a backend server group, and lists backend server groups.
	Backend server	Adds, updates, and removes a backend server, shows the details of a backend server, and lists backend servers.
	Health check	Configures, updates, and disables a health check, and shows the details of a health check.

Type	Resource	Description
	Forwarding policy	Adds, updates, and deletes a forwarding policy, shows the details of a forwarding policy, and lists forwarding policies.
	Forwarding rule	Adds, updates, and deletes a forwarding rule, shows the details of a forwarding rule, and lists forwarding rules.
	Whitelist	Creates, updates, and deletes a certificate, and lists whitelist.
	SSL certificate	Creates, updates, and deletes a certificate, and lists certificates.
	Tag	Adds a tag to and deletes a tag from a load balancer, batch adds and deletes load balancer tags, lists all tags of a load balancer, lists tags of all load balancers, queries load balancers by tag, adds and deletes a tag to a listener, batch adds and deletes tags to a listener, lists all tags of a listener, lists tags of all listeners, and queries listeners by tag.

# 3 Calling APIs

## 3.1 Making an API Request

This section describes the structure of a REST API request, and uses the IAM API for obtaining a user token as an example to demonstrate how to call an API. The obtained token can then be used to authenticate the calling of other APIs.

### Request URI

A request URI is in the following format:

**{URI-scheme}://{Endpoint}/{resource-path}?{query-string}**

Although a request URI is included in the request header, most programming languages or frameworks require the request URI to be transmitted separately.

**Table 3-1** URI parameter description

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from <a href="#">Regions and Endpoints</a> .
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, the <b>resource-path</b> of the API used to obtain a user token is <b>/v3/auth/tokens</b> .
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of <i>Parameter name=Parameter value</i> . For example, <b>?limit=10</b> indicates that a maximum of 10 data records will be displayed.

 NOTE

To simplify the URI display in this document, each API is provided only with a **resource-path** and a request method. The **URI-scheme** of all APIs is **HTTPS**, and the endpoints of all APIs in the same region are identical.

## Request Methods

The HTTP protocol defines the following request methods that can be used to send a request to the server.

**Table 3-2** HTTP methods

Method	Description
GET	Requests the server to return specified resources.
PUT	Requests the server to update specified resources.
POST	Requests the server to add resources or perform special operations.
DELETE	Requests the server to delete specified resources, for example, an object.
HEAD	Same as GET except that the server must return only the response header.
PATCH	Requests the server to update partial content of a specified resource. If the resource does not exist, a new resource will be created.

For example, in the case of the API used to obtain a user token, the request method is **POST**. The request is as follows:

```
POST https://{{endpoint}}/v3/auth/tokens
```

## Request Header

You can also add additional header fields to a request, such as the fields required by a specified URI or HTTP method. For example, to request for the authentication information, add **Content-Type**, which specifies the request body type.

Common request header fields are as follows.

**Table 3-3** Common request header fields

Parameter	Description	Mandatory	Example Value
Host	Specifies the server domain name and port number of the resources being requested. The value can be obtained from the URL of the service API. The value is in the format of <i>Hostname:Port number</i> . If the port number is not specified, the default port is used. The default port number for <b>https</b> is <b>443</b> .	No This field is mandatory for AK/SK authentication.	code.test.com or code.test.com:443
Content-Type	Specifies the type (or format) of the message body. The default value <b>application/json</b> is recommended. Other values of this field will be provided for specific APIs if any.	Yes	application/json
Content-Length	Specifies the length of the request body. The unit is byte.	No	3495
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in <a href="#">Obtaining a Project ID</a> .	No This field is mandatory for requests that use AK/SK authentication in the Dedicated Cloud (DeC) scenario or multi-project scenario.	e9993fc787d94b6c886cbaa340f9c0f4



Parameter	Description	Mandatory	Example Value
X-Auth-Token	<p>Specifies the user token. It is a response to the API for obtaining a user token (This is the only API that does not require authentication).</p> <p>After the request is processed, the value of <b>X-Subject-Token</b> in the response header is the token value.</p>	<p>No</p> <p>This field is mandatory for token authentication.</p>	<p>The following is part of an example token:</p> <p>MIIPAgYJKoZlhvcNAQcCo...ggg1BBIINPXsidG9rZ</p>

 **NOTE**

In addition to supporting authentication using tokens, APIs support authentication using AK/SK, which uses SDKs to sign a request. During the signature, the **Authorization** (signature authentication) and **X-Sdk-Date** (time when a request is sent) headers are automatically added in the request.

For more details, see "Authentication Using AK/SK" in [Authentication](#).

The API used to obtain a user token does not require authentication. Therefore, only the **Content-Type** field needs to be added to requests for calling the API. An example of such requests is as follows:

```
POST https://{{endpoint}}/v3/auth/tokens
Content-Type: application/json
```

### (Optional) Request Body

This part is optional. The body of a request is often sent in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The request body transfers content except the request header.

The request body varies between APIs. Some APIs do not require the request body, such as the APIs requested using the GET and DELETE methods.

In the case of the API used to obtain a user token, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace *username*, *domainname*, *\*\*\*\*\** (login password), and *xxxxxxxxxxxxxxxxxxxx* (project name) with the actual values. Obtain a project name from [Regions and Endpoints](#).

 **NOTE**

The **scope** parameter specifies where a token takes effect. You can set **scope** to an account or a project under an account. In the following example, the token takes effect only for the resources in a specified project. For more information about this API, see "Obtaining a User Token".

```
POST https://{{endpoint}}/v3/auth/tokens
Content-Type: application/json
```

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username",
          "password": "*****",
          "domain": {
            "name": "domainname"
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "xxxxxxxxxxxxxxxxxxxxx"
      }
    }
  }
}
```

If all data required for the API request is available, you can send the request to call the API through [curl](#), [Postman](#), or coding. In the response to the API used to obtain a user token, **X-Subject-Token** is the desired user token. This token can then be used to authenticate the calling of other APIs.

## 3.2 Authentication

Requests for calling an API can be authenticated using either of the following methods:

- Token authentication: Requests are authenticated using tokens.
- AK/SK authentication: Requests are encrypted using AK/SK pairs. AK/SK authentication is recommended because it is more secure than token authentication.

### Token Authentication

#### NOTE

The validity period of a token is 24 hours. When using a token for authentication, cache it to prevent frequently calling the IAM API used to obtain a user token.

A token specifies temporary permissions in a computer system. During API authentication using a token, the token is added to requests to get permissions for calling the API. You can obtain a token by calling the Obtaining User Token API.

IMS is a project-level service. When you call the API, set **auth.scope** in the request body to **project**.

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username", // IAM user name
        }
      }
    }
  }
}
```

```
"password": "*****", // IAM user password
"domain": {
  "name": "domainname" // Name of the account to which the IAM user belongs
}
},
"scope": {
  "project": {
    "name": "xxxxxxx" // Project name
  }
}
}
```

After a token is obtained, the **X-Auth-Token** header field must be added to requests to specify the token when calling other APIs. For example, if the token is **ABCDEFJ....**, **X-Auth-Token: ABCDEFJ....** can be added to a request as follows:

```
POST https://{{endpoint}}/v3/auth/projects
Content-Type: application/json
X-Auth-Token: ABCDEFJ....
```

## AK/SK Authentication

### NOTE

AK/SK authentication supports API requests with a body not larger than 12 MB. For API requests with a larger body, token authentication is recommended.

In AK/SK authentication, AK/SK is used to sign requests and the signature is then added to the requests for authentication.

- AK: access key ID, which is a unique identifier used in conjunction with a secret access key to sign requests cryptographically.
- SK: secret access key, which is used in conjunction with an AK to sign requests cryptographically. It identifies a request sender and prevents the request from being modified.

In AK/SK authentication, you can use an AK/SK to sign requests based on the signature algorithm or using the signing SDK. For details about how to sign requests and use the signing SDK, see [API Request Signing Guide](#).

### NOTE

The signing SDK is only used for signing requests and is different from the SDKs provided by services.

## 3.3 Response

### Status Code

After sending a request, you will receive a response, including a status code, response header, and response body.

A status code is a group of digits, ranging from 1xx to 5xx. It indicates the status of a request. For more information, see [Status Codes](#).

For example, if status code **201** is returned for calling the API used to obtain a user token, the request is successful.

## Response Header

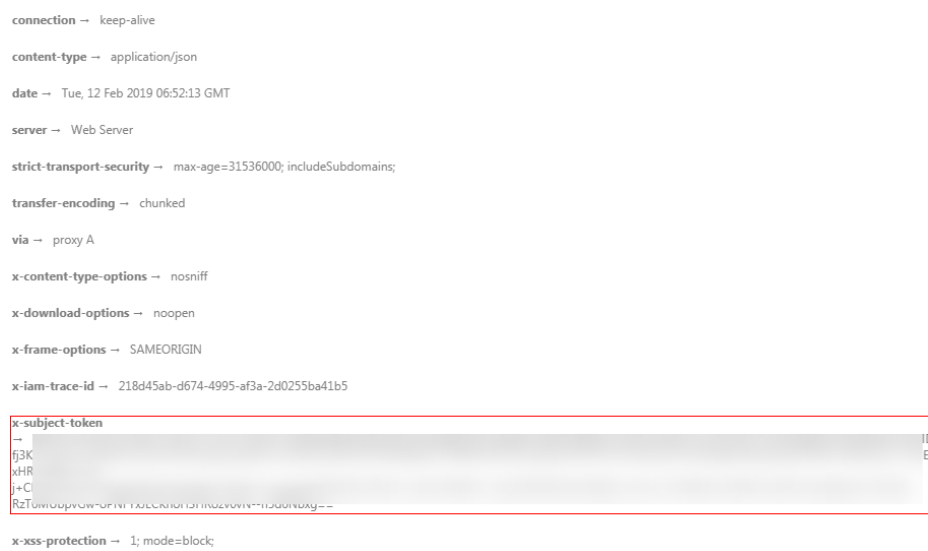
Similar to a request, a response also has a header, for example, **Content-Type**.

**Figure 3-1** shows the response header fields for the API used to obtain a user token. The **X-Subject-Token** header field is the desired user token. This token can then be used to authenticate the calling of other APIs.

### NOTE

For security purposes, you are advised to set the token in ciphertext in configuration files or environment variables and decrypt it when using it.

**Figure 3-1** Header fields of the response to the request for obtaining a user token



```
connection → keep-alive
content-type → application/json
date → Tue, 12 Feb 2019 06:52:13 GMT
server → Web Server
strict-transport-security → max-age=31536000; includeSubdomains;
transfer-encoding → chunked
via → proxy A
x-content-type-options → nosniff
x-download-options → noopen
x-frame-options → SAMEORIGIN
x-iam-trace-id → 218d45ab-d674-4995-af3a-2d0255ba41b5
x-subject-token → [REDACTED]
x-xss-protection → 1; mode=block
```

## (Optional) Response Body

The body of a response is often returned in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The response body transfers content except the response header.

The following is part of the response body for the API used to obtain a user token.

```
{
  "token": {
    "expires_at": "2019-02-13T06:52:13.855000Z",
    "methods": [
      "password"
    ],
    "catalog": [
      {
        "endpoints": [
          {
            "region_id": "az-01",
            .....

```

If an error occurs during API calling, an error code and a message will be displayed. The following shows an error response body.

```
{  
  "error_msg": "The request message format is invalid.",  
  "error_code": "IMG.0001"  
}
```

In the response body, **error\_code** is an error code, and **error\_msg** provides information about the error.

# 4 Getting Started

## 4.1 Creating a Load Balancer

### Scenarios

Assume that you have created a VPC and several ECSs on the cloud platform. To ensure high performance and availability of ECSs, a load balancer is required to distribute requests to different backend ECSs.

This section describes how to invoke the API to create a load balancer.

#### NOTE

The validity period of a token obtained from IAM is 24 hours. If you want to use a token for authentication, cache it to avoid frequently calling the IAM API.

### Involved APIs

If you use a token for authentication, you must obtain the token and add **X-Auth-Token** to the request header of the ELB API when making an API call.

- IAM API used to obtain the token
- ELB API used to create a load balancer

### Procedure

1. Obtain the token by referring to [Authentication](#).
2. Send **POST https://ELB endpoint/v2.0/lbaas/loadbalancers**.
3. Add **X-Auth-Token** to the request header.
4. Specify the following parameters in the request body:

```
{
  "loadbalancer": {
    "name": "loadbalancer1", //Load balancer name
    "description": "simple lb", //Load balancer description
    "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b", //ID of the IPv4 subnet where the
load balancer works
    "vip_address": "10.0.0.4" //IP address of the load balancer
  }
}
```

If the request is successful, the response body is returned.

If the request fails, an error code and error information are returned. For details, see [Status Codes](#).

## 4.2 Obtaining a Token

### Application Scenarios

If you use a token for authentication, you must obtain the token and add **X-Auth-Token** to the request header of the API when making a call.

### Authenticating the Token

**Step 1** Send **POST** [https://IAM\\_endpoint/v3/auth/tokens](https://IAM_endpoint/v3/auth/tokens). Obtain the Identity and Access Management (IAM) endpoint and region name in the message body.

See .

See [Regions and Endpoints](#).

The following is an example request:

#### NOTE

The italic words in the following example need to be replaced with the actual values. For details, see the *Identity and Access Management API Reference*.

```
{
  "auth": {
    "identity": {
      "methods": [
        "password"
      ],
      "password": {
        "user": {
          "name": "username",
          "password": "password",
          "domain": {
            "name": "domainname"
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "aaa"
      }
    }
  }
}
```

**Step 2** Obtain the token. The token is the value of **X-Subject-Token** in the response.

**Step 3** Call a service API, add **X-Auth-Token** to the request header, and set the value of **X-Auth-Token** to the token obtained in [Step 2](#).

----End

# 5 Dedicated Load Balancer APIs

---

## 5.1 API Version

### 5.1.1 Querying API Versions

#### Function

This API is used to query all available ELB API versions.

#### Calling Method

For details, see [Calling APIs](#).

#### URI

GET /versions

#### Request Parameters

None

#### Response Parameters

Status code: 200

Table 5-1 Response body parameters

Parameter	Type	Description
versions	Array of <a href="#">ApiVersionInfo</a> objects	Lists the available API versions.



Table 5-2 ApiVersionInfo

Parameter	Type	Description
id	String	Specifies the API version. The value can be <b>v3</b> , <b>v2</b> , or <b>v2.0</b> in ascending order.
status	String	Specifies the status of the API version. The values are as follows: <ul style="list-style-type: none"><li>● <b>CURRENT</b>: current version</li><li>● <b>STABLE</b>: stable version</li><li>● <b>DEPRECATED</b>: discarded version</li></ul> Note: <b>CURRENT</b> indicates the latest version.

## Example Requests

Querying API versions of a load balancer

```
GET https://{ELB_Endpoint}/versions
```

## Example Responses

**Status code: 200**

Successful request.

```
{  
  "versions": [  
    {  
      "id": "v3",  
      "status": "CURRENT"  
    },  
    {  
      "id": "v2",  
      "status": "STABLE"  
    },  
    {  
      "id": "v2.0",  
      "status": "STABLE"  
    }  
  ]  
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.2 Quota

### 5.2.1 Querying Quotas

#### Function

This API is used to query the quotas of load balancers and related resources in a specific project.

#### Calling Method

For details, see [Calling APIs](#).

#### URI

GET /v3/{project\_id}/elb/quotas

**Table 5-3** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

#### Request Parameters

**Table 5-4** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

#### Response Parameters

**Status code: 200**

**Table 5-5** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.

Parameter	Type	Description
quota	Quota object	Specifies the quotas of load balancers and associated resources. Only the total quotas are returned. Remaining available quotas will not be returned.

**Table 5-6** Quota

Parameter	Type	Description
project_id	String	Specifies the project ID.
loadbalancer	Integer	Specifies the load balancer quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the load balancer quota.</li><li>• If the value is -1, the quota is not limited.</li></ul>
certificate	Integer	Specifies the certificate quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the certificate quota.</li><li>• If the value is -1, the quota is not limited.</li></ul>
listener	Integer	Specifies the listener quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the listener quota.</li><li>• If the value is -1, the quota is not limited.</li></ul>
l7policy	Integer	Specifies the forwarding policy quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the forwarding policy quota.</li><li>• If the value is -1, the quota is not limited.</li></ul>
condition_per_policy	Integer	Specifies the forwarding policy quota. The value can be: <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the current quota.</li><li>• -1 indicates that the quota is not limited.</li></ul>
pool	Integer	Specifies the backend server group quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the backend server group quota.</li><li>• If the value is -1, the quota is not limited.</li></ul>
healthmonitor	Integer	Specifies the health check quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the health check quota.</li><li>• If the value is -1, the quota is not limited.</li></ul>

Parameter	Type	Description
member	Integer	Specifies the backend server quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the backend server quota.</li><li>• If the value is <b>-1</b>, the quota is not limited.</li></ul>
members_per_pool	Integer	Specifies the quota of backend servers in a backend server group. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the backend server quota.</li><li>• If the value is <b>-1</b>, the quota is not limited.</li></ul>
listeners_per_pool	Integer	Specifies the maximum number of backend servers that can be added to a backend server group. The value can be: <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the current quota.</li><li>• <b>-1</b> indicates that the quota is not limited.</li></ul>
ipgroup	Integer	Specifies the IP address group quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the IP address group quota.</li><li>• If the value is <b>-1</b>, the quota is not limited.</li></ul>
ipgroup_bindings	Integer	Specifies the IP address group quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the IP address group quota.</li><li>• If the value is <b>-1</b>, the quota is not limited.</li></ul>
ipgroup_max_length	Integer	Specifies the IP address group quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the IP address group quota.</li><li>• If the value is <b>-1</b>, the quota is not limited.</li></ul>
security_policy	Integer	Specifies the custom security policy quota. <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the custom security policy quota.</li><li>• If the value is <b>-1</b>, the quota is not limited.</li></ul>

Parameter	Type	Description
listeners_per_loadbalancer	Integer	<p>Specifies the maximum number of listeners that can be associated with a load balancer. The value can be:</p> <ul style="list-style-type: none"><li>If the value is greater than or equal to 0, it indicates the current quota.</li><li>-1 indicates that the quota is not limited.</li></ul> <p><b>NOTE</b> The maximum number of listeners that can be added to a load balancer is not limited. It is recommended that you keep listeners within the default quota.</p>

## Example Requests

Querying the quotas of resources associated with a load balancer.

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/quotas
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "request_id" : "c6f3d7fe99bb1d8aa29e148097dab0d0",
  "quota" : {
    "member" : 10000,
    "members_per_pool" : 1000,
    "certificate" : -1,
    "l7policy" : 2000,
    "listener" : 1500,
    "loadbalancer" : 100000,
    "healthmonitor" : -1,
    "pool" : 5000,
    "ipgroup" : 1000,
    "ipgroup_bindings" : 50,
    "ipgroup_max_length" : 300,
    "security_policy" : 50,
    "project_id" : "060576798a80d5762fafc01a9b5eecd7",
    "condition_per_policy" : 10,
    "listeners_per_pool" : 50,
    "listeners_per_loadbalancer" : 50
  }
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.2.2 Querying Quota Usage

### Function

This API is used to query the current quotas and used quotas of resources related to a dedicated load balancer in a specific project.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/quotas/details

**Table 5-7** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-8** Query Parameters

Parameter	Mandatory	Type	Description
quota_key	No	Array	Specifies the resource type. The value can be <b>loadbalancer, listener, ipgroup, pool, member, healthmonitor, l7policy, certificate, security_policy, listeners_per_loadbalancer, listeners_per_pool, members_per_pool, condition_per_policy, ipgroup_bindings, or ipgroup_max_length</b> . Multiple values can be queried in the format of <i>quota_key=xxx&amp;quota_key=xxx</i> .

## Request Parameters

**Table 5-9** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-10** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
quotas	Array of <a href="#">QuotaInfo</a> objects	Specifies the resource quotas.

**Table 5-11** QuotaInfo

Parameter	Type	Description
quota_key	String	Specifies the resource type. The value can be <b>loadbalancer</b> , <b>listener</b> , <b>ipgroup</b> , <b>pool</b> , <b>member</b> , <b>members_per_pool</b> , <b>healthmonitor</b> , <b>l7policy</b> , <b>certificate</b> , <b>security_policy</b> , <b>condition_per_policy</b> , <b>listeners_per_pool</b> , <b>ipgroup_bindings</b> , or <b>ipgroup_max_length</b> . <b>members_per_pool</b> indicates the maximum number of backend servers that can be added to a backend server group.
quota_limit	Integer	Specifies the total quota. Values: <ul style="list-style-type: none"><li>• If the value is greater than or equal to 0, it indicates the current quota.</li><li>• -1 indicates that the quota is not limited.</li></ul>
used	Integer	Specifies the used quota.
unit	String	Specifies the quota unit. The value can only be <b>count</b> .

## Example Requests

Querying the quota of a specific ELB resource type

```
https://{ELB_Endpoint}/v3/06b9dc6cbf80d5952f18c0181a2f4654/elb/quotas/details?  
quota_key=members_per_pool&quota_key=loadbalancer
```

## Example Responses

**Status code: 200**

Successful request.

```
{  
  "request_id": "a396ad8e282d69d1afec6d437fe93c2d",  
  "quotas": [ {  
    "quota_key": "members_per_pool",  
    "used": 992,  
    "quota_limit": 1000,  
    "unit": "count"  
  }, {  
    "quota_key": "security_policy",  
    "used": 11,  
    "quota_limit": 50,  
    "unit": "count"  
  }, {  
    "quota_key": "ipgroup_max_length",  
    "used": 3,  
    "quota_limit": 300,  
    "unit": "count"  
  }, {  
    "quota_key": "listener",  
    "used": 803,  
    "quota_limit": 1500,  
    "unit": "count"  
  }, {  
    "quota_key": "pool",  
    "used": 1009,  
    "quota_limit": 5000,  
    "unit": "count"  
  }, {  
    "quota_key": "certificate",  
    "used": 608,  
    "quota_limit": -1,  
    "unit": "count"  
  }, {  
    "quota_key": "loadbalancer",  
    "used": 752,  
    "quota_limit": 100000,  
    "unit": "count"  
  }, {  
    "quota_key": "ipgroup",  
    "used": 11,  
    "quota_limit": 1000,  
    "unit": "count"  
  }, {  
    "quota_key": "ipgroup_bindings",  
    "used": 2,  
    "quota_limit": 50,  
    "unit": "count"  
  }, {  
    "quota_key": "member",  
    "used": 3022,  
    "quota_limit": 10000,  
    "unit": "count"  
  }, {  
    "quota_key": "listeners_per_loadbalancer",  
    "used": 0,  
    "unit": "count"  
  } ]  
}
```



```
"quota_limit" : 50,
"unit" : "count"
}, {
"quota_key" : "l7policy",
"used" : 148,
"quota_limit" : 2000,
"unit" : "count"
}, {
"quota_key" : "healthmonitor",
"used" : 762,
"quota_limit" : -1,
"unit" : "count"
} ]
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.3 AZ

### 5.3.1 Querying AZs

#### Function

This API is used to query all available AZs when you create a dedicated load balancer.

- One set of AZs is returned by default. When you create a dedicated load balancer, you can select one or more AZs only in this set.
- In special scenarios, dedicated load balancers must be created in specific AZs. In the returned one or more sets of AZs, you can select as many AZs as you want as long as the selected AZs are in the same set. For example, if two sets **[az1,az2]** and **[az2,az3]** are returned, you can select **az1** and **az2** or **az2** and **az3**, but cannot select **az1** and **az3**.

#### Calling Method

For details, see [Calling APIs](#).

#### URI

GET /v3/{project\_id}/elb/availability-zones

**Table 5-12** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-13** Query Parameters

Parameter	Mandatory	Type	Description
public_border_group	No	String	Specifies the AZ group.

## Request Parameters

**Table 5-14** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-15** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
availability_zones	Array<Array<AvailabilityZone>>	Specifies the AZs that are available during load balancer creation. For example, in [az1,az2] and [az2,az3] sets, you can select az1 and az2 or az2 and az3, but cannot select az1 and az3.

**Table 5-16** AvailabilityZone

Parameter	Type	Description
code	String	Specifies the AZ code.
state	String	Specifies the AZ status. The value can only be <b>ACTIVE</b> .

Parameter	Type	Description
protocol	Array of strings	Specifies the type of the flavor that is not sold out. <b>L4</b> indicates the flavor at Layer 4 (flavor for network load balancing). <b>L7</b> indicates the flavor at Layer 7 (flavor for application load balancing).
public_border_group	String	Specifies the AZ group, for example, <b>center</b> .
category	Integer	Specifies the AZ code. <b>0</b> indicates <b>center</b> . <b>21</b> indicates <b>homezone</b> .

## Example Requests

Querying AZs where a load balancer works

```
GET https://{ELB_Endpoint}/v3/060576782980d5762f9ec014dd2f1148/elb/availability-zones
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "availability_zones" : [ [ {
    "state" : "ACTIVE",
    "code" : "az1",
    "protocol" : [ "L4", "L7" ],
    "public_border_group" : "center",
    "category" : 0
  }, {
    "state" : "ACTIVE",
    "code" : "az2",
    "protocol" : [ "L4" ],
    "public_border_group" : "center",
    "category" : 0
  }, {
    "state" : "ACTIVE",
    "code" : "az3",
    "protocol" : [ "L7" ],
    "public_border_group" : "center",
    "category" : 0
  }, {
    "state" : "ACTIVE",
    "code" : "homezone.az0",
    "protocol" : [ "L4" ],
    "public_border_group" : "homezone.azg",
    "category" : 21
  } ] ],
  "request_id" : "0d799435-259e-459f-b2bc-0beee06f6a77"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

# 5.4 Load Balancer

## 5.4.1 Creating a Load Balancer

### Function

This API is used to create a dedicated load balancer. When you create a dedicated load balancer, note the following:

- Specify **vip\_subnet\_cidr\_id** if you want to bind a private IPv4 address to the dedicated load balancer.
- Specify **publicip** and either **vpc\_id** or **vip\_subnet\_cidr\_id** if you want to bind a new IPv4 EIP to the dedicated load balancer.
- Specify **publicip\_ids** and either **vpc\_id** or **vip\_subnet\_cidr\_id** if you want to bind an existing IPv4 EIP to the dedicated load balancer.
- Specify **ipv6\_vip\_virsubnet\_id** if you want to bind a private IPv6 address to the dedicated load balancer.
- Specify both **ipv6\_vip\_virsubnet\_id** and **ipv6\_bandwidth** if you want to bind a public IPv6 address to the dedicated load balancer.
- You cannot bind an existing and unoccupied private IPv4 address, IPv6 address, or public IPv6 address to the dedicated load balancer.
- You must specify the ID of a flavor at Layer 4 for **l4\_flavor\_id** and the ID of a flavor at Layer 7 for **l7\_flavor\_id**.

### Constraints

There are some constraints when you create a dedicated load balancer:

- **vpc\_id**, **vip\_subnet\_cidr\_id**, and **ipv6\_vip\_virsubnet\_id** cannot be left blank at the same time.
- **ip\_target\_enable** specifies whether to enable **IP as a Backend**. If you enable this function for a dedicated load balancer, you can associate servers in a VPC connected through a VPC peering connection, in a VPC connected through a cloud connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using server IP addresses.
- **admin\_state\_up** must be set to **true**.

- **provider** must be set to **vlb**.
- **elb\_virsubnet\_ids** indicates the subnets that support IPv4/IPv6 dual stack or only IPv4 subnets. If only IPv4 subnets are supported, **ipv6\_vip\_virsubnet\_id** must be left blank.
- If you bind an EIP to the load balancer during creation, you cannot unbind it from the load balancer by calling the API after the load balancer is created. Instead, you can unbind the EIP only on the ELB console. Locate the dedicated load balancer in the load balancer list and click **More > Unbind EIP** in the **Operation** column.
- **publicip\_ids** and **publicip** cannot be specified at the same time. Set either **publicip\_ids** to bind an existing EIP to the load balancer, or **publicip** to bind a new EIP to the load balancer, or neither of them.
- If you want to add the load balancer to a shared bandwidth, you must specify the ID of the shared bandwidth. If you want the load balancer to use a new dedicated bandwidth, **charge\_mode**, **share\_type**, and **size** are required.

## Calling Method

For details, see [Calling APIs](#).

## URI

POST /v3/{project\_id}/elb/loadbalancers

**Table 5-17** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID of the load balancer. Minimum: <b>0</b> Maximum: <b>36</b>

## Request Parameters

**Table 5-18** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	Specifies the token used for IAM authentication. Minimum: <b>0</b> Maximum: <b>4096</b>

**Table 5-19** Request body parameters

Parameter	Mandatory	Type	Description
loadbalancer	Yes	CreateLoadBalancerOption object	Specifies the load balancer.

**Table 5-20** CreateLoadBalancerOption

Parameter	Mandatory	Type	Description
id	No	String	Specifies the ID of a load balancer. This parameter is unsupported. Please do not use it. Minimum: <b>0</b> Maximum: <b>36</b>
project_id	No	String	Specifies the project ID. Minimum: <b>1</b> Maximum: <b>32</b>
name	No	String	Specifies the load balancer name. Minimum: <b>0</b> Maximum: <b>255</b>
description	No	String	Provides supplementary information about the load balancer. Minimum: <b>0</b> Maximum: <b>255</b>

Parameter	Mandatory	Type	Description
vip_address	No	String	<p>Specifies the private IPv4 address bound to the load balancer. The IP address must be from the IPv4 subnet where the load balancer resides and should not be occupied by other services.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• <b>vip_subnet_cidr_id</b> is also required if <b>vip_address</b> is passed.</li><li>• If only <b>vip_subnet_cidr_id</b> is passed, the system will automatically assign a private IPv4 address to the load balancer.</li><li>• If both <b>vip_address</b> and <b>vip_subnet_cidr_id</b> are not passed, no private IPv4 address will be assigned, and the value of <b>vip_address</b> will be <b>null</b>.</li></ul>

Parameter	Mandatory	Type	Description
vip_subnet_cidr_id	No	String	<p>Specifies the ID of the IPv4 subnet where the load balancer resides. This parameter is mandatory if you need to create a load balancer with a private IPv4 address.</p> <p>You can query parameter <b>neutron_subnet_id</b> in the response by calling the API (GET https:// {VPC_Endpoint}/v1/ {project_id}/subnets).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• <b>vpc_id</b>, <b>vip_subnet_cidr_id</b> and <b>ipv6_vip_virsubnet_id</b> cannot be left blank at the same time. The subnet specified by <b>vip_subnet_cidr_id</b> and the subnet specified by <b>ipv6_vip_virsubnet_id</b> must be in the VPC specified by <b>vpc_id</b>.</li> <li>• The subnet specified by <b>vip_subnet_cidr_id</b> must be in the VPC specified by <b>vpc_id</b> if both <b>vpc_id</b> and <b>vip_subnet_cidr_id</b> are passed.</li> </ul> <p>Minimum: 1 Maximum: 36</p>



Parameter	Mandatory	Type	Description
ipv6_vip_virsubnet_id	No	String	<p>Specifies the ID of the IPv6 subnet where the load balancer resides. You can query <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets).</p> <p>Note:</p> <ul style="list-style-type: none"><li>• <b>vpc_id</b>, <b>vip_subnet_cidr_id</b> and <b>ipv6_vip_virsubnet_id</b> cannot be left blank at the same time. The subnet specified by <b>vip_subnet_cidr_id</b> and the subnet specified by <b>ipv6_vip_virsubnet_id</b> must be in the VPC specified by <b>vpc_id</b>.</li><li>• IPv6 must have been enabled for the IPv6 subnet where the load balancer resides.</li></ul>
provider	No	String	<p>Specifies the provider of the load balancer. The value can only be <b>vlb</b>.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
l4_flavor_id	No	String	<p>Specifies the ID of a flavor at Layer 4.</p> <p>All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>
l7_flavor_id	No	String	<p>Specifies the ID of a flavor at Layer 7.</p> <p>All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>

Parameter	Mandatory	Type	Description
guaranteed	No	Boolean	<p>Specifies whether the load balancer is a dedicated load balancer.</p> <ul style="list-style-type: none"><li>• <b>true</b> (default): The load balancer is a dedicated load balancer.</li><li>• <b>false</b>: The load balancer is a shared load balancer.</li></ul> <p>Currently, the value can only be <b>true</b>. If the value is set to <b>false</b>, 400 Bad Request will be returned.</p>
vpc_id	No	String	<p>Specifies the ID of the VPC where the load balancer resides. You can query parameter <b>id</b> in the response by calling the API (GET <a href="https://{VPC_Endpoint}/v1/{project_id}/vpcs">https://{VPC_Endpoint}/v1/{project_id}/vpcs</a>).</p> <p><b>vpc_id</b>, <b>vip_subnet_cidr_id</b> and <b>ipv6_vip_virsubnet_id</b> cannot be left blank at the same time. The subnet specified by <b>vip_subnet_cidr_id</b> and the subnet specified by <b>ipv6_vip_virsubnet_id</b> must be in the VPC specified by <b>vpc_id</b>.</p>
availability_zone_list	Yes	Array of strings	<p>Specifies the list of AZs where the load balancer can be created. You can query the AZs by calling the API (GET <a href="https://{ELB_Endpoint}/v3/{project_id}/elb/availability-zones">https://{ELB_Endpoint}/v3/{project_id}/elb/availability-zones</a>). Select one or more AZs in the same set.</p>

Parameter	Mandatory	Type	Description
enterprise_project_id	No	String	Specifies the ID of the enterprise project that the load balancer belongs to. The value cannot be "", "0", or the ID of an enterprise project that does not exist. If this parameter is not passed during resource creation, the resource belongs to the default enterprise project, and 0 will be returned.
tags	No	Array of <b>Tag</b> objects	Lists the tags added to the load balancer. Example: "tags": [{"key": "my_tag", "value": "my_tag_value"}]
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. The value can only be <b>true</b> (default).
ipv6_bandwidth	No	<b>BandwidthRef</b> object	Specifies the ID of the bandwidth used by an IPv6 address. This parameter is available only when you create or update a load balancer with a public IPv6 address. If you use a new IPv6 address and specify a shared bandwidth, the IPv6 address will be added to the shared bandwidth.
publicip_ids	No	Array of strings	Specifies the ID of the EIP the system will automatically assign and bind to the load balancer during load balancer creation. Only the first EIP will be bound to the load balancer although multiple EIP IDs can be set.
publicip	No	<b>CreateLoadBalancerPublicIpOption</b> object	Specifies the new EIP that will be bound to the load balancer.

Parameter	Mandatory	Type	Description
elb_virsubnet_ids	No	Array of strings	<p>Lists subnet IDs on the downstream plane. You can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets).</p> <p>If this parameter is not specified, the subnet IDs will be returned based on the following rules:</p> <ul style="list-style-type: none"> <li>• If IPv6 is enabled for a load balancer, the subnet IDs specified in <b>ipv6_vip_virsubnet_id</b> will be returned.</li> <li>• If IPv6 is not enabled for a load balancer, the subnet IDs specified in <b>vip_subnet_cidr_id</b> will be returned.</li> <li>• If a load balancer only works on the public network, the ID of any subnet in the VPC where the load balancer is deployed will be returned. The subnet that has the most available IP addresses is preferred.</li> </ul> <p>If there is more than one subnet, the first subnet in the list will be used to assign IP addresses.</p> <p>The subnet must be in the VPC where the load balancer works.</p>

Parameter	Mandatory	Type	Description
ip_target_enable	No	Boolean	<p>Specifies whether to enable IP as a backend. The value can be <b>true</b> (enable IP as a backend) or <b>false</b> (disable IP as a backend). This function cannot be disabled after it is enabled.</p> <p>If you enable this function, you can add servers in a VPC connected through a VPC peering connection, in a VPC connected through a cloud connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.</p> <p>If you enable this function for a dedicated load balancer deployed in a shared VPC, ensure that a VPC peering connection has been created.</p> <p>This function is available only for dedicated load balancers.</p>
deletion_protection_enable	No	Boolean	<p>Specifies whether to enable deletion protection for the load balancer.</p> <ul style="list-style-type: none"><li>• <b>true</b>: Enable deletion protection.</li><li>• <b>false</b> (default): Disable deletion protection.</li></ul> <p><b>NOTE</b> Disable deletion protection for all your resources before deleting your account.</p>

Parameter	Mandatory	Type	Description
autoscaling	No	<a href="#">CreateLoadBalancerAutoscalingOption</a> object	<p>Specifies the information about elastic scaling. If elastic scaling is enabled, the load balancer specifications can be automatically adjusted based on incoming traffic.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>This parameter is only available for users on the whitelist.</li> <li>If elastic scaling is enabled, <b>l4_flavor_id</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>l7_flavor_id</b> indicates the maximum Layer-7 flavor for elastic scaling.</li> </ul> <p>This parameter is unsupported. Please do not use it.</p>
ipv6_vip_address	No	String	Specifies the IPv6 address bound to the load balancer.

**Table 5-21** Tag

Parameter	Mandatory	Type	Description
key	No	String	<p>Specifies the tag key.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>36</b></p>
value	No	String	<p>Specifies the tag value.</p> <p>Minimum: <b>0</b></p> <p>Maximum: <b>43</b></p>

**Table 5-22** BandwidthRef

Parameter	Mandatory	Type	Description
id	Yes	String	Specifies the shared bandwidth ID.

**Table 5-23** CreateLoadBalancerPublicIpOption

Parameter	Mandatory	Type	Description
ip_version	No	Integer	Specifies the IP address version. The value can be <b>4</b> (IPv4) or <b>6</b> (IPv6). Default: <b>4</b>
network_type	Yes	String	Specifies the EIP type. The default value is <b>5_bgp</b> . For more information, see the API for assigning an EIP in the <i>Virtual Private Cloud API Reference</i> . Minimum: <b>1</b> Maximum: <b>36</b>
billing_info	No	String	Provides billing information about the EIP. <ul style="list-style-type: none"><li>• If the value is left blank, the EIP is billed in pay-per-use mode.</li><li>• If the value is not left blank, the EIP is billed on a yearly/monthly basis.</li></ul> This parameter is unsupported. Please do not use it. Minimum: <b>1</b> Maximum: <b>1024</b>
description	No	String	Provides supplementary information about the EIP. Minimum: <b>1</b> Maximum: <b>255</b>
bandwidth	Yes	<a href="#">CreateLoadBalancerBandwidthOption</a> object	bandwidth

**Table 5-24** CreateLoadBalancerBandwidthOption

Parameter	Mandatory	Type	Description
name	No	String	<p>Specifies the bandwidth name.</p> <p>The value can contain 1 to 64 characters, including letters, digits, underscores (_), hyphens (-), and periods.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter is mandatory if <b>share_type</b> is set to <b>PER</b>.</li><li>• This parameter will be ignored if the bandwidth reference has a specific ID.</li></ul> <p>Minimum: <b>1</b> Maximum: <b>64</b></p>
size	No	Integer	<p>Specifies the bandwidth range.</p> <p>The default range is 1 Mbit/s to 2,000 Mbit/s. (The specific range may vary depending on the configuration in each region. You can see the available bandwidth range on the management console.)</p> <p>Note:</p> <p>The minimum increment for bandwidth adjustment varies depending on the bandwidth range. The following are the details:</p> <ul style="list-style-type: none"><li>• The minimum increment is 1 Mbit/s if the bandwidth range is from 0 Mbit/s to 300 Mbit/s.</li><li>• The minimum increment is 50 Mbit/s if the bandwidth range is from 301 Mbit/s to 1,000 Mbit/s.</li><li>• The minimum increment is 500 Mbit/s if the bandwidth is greater than 1,000 Mbit/s.</li></ul> <p>This parameter is mandatory if <b>id</b> is set to <b>null</b>.</p> <p>Minimum: <b>0</b> Maximum: <b>99999</b></p>



Parameter	Mandatory	Type	Description
charge_mode	No	String	<p>Specifies how the bandwidth used by the EIP is billed.</p> <ul style="list-style-type: none"> <li>● <b>traffic</b>: The bandwidth will be billed by traffic.</li> <li>● <b>bandwidth</b>: The bandwidth will be billed by fixed bandwidth.</li> </ul> <p>This parameter is mandatory if <b>id</b> is set to <b>null</b>.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>
share_type	No	String	<p>Specifies the bandwidth type.</p> <ul style="list-style-type: none"> <li>● <b>PER</b>: indicates dedicated bandwidth.</li> <li>● <b>WHOLE</b>: indicates shared bandwidth.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>● This parameter is mandatory when <b>id</b> is set to <b>null</b>. It will be ignored if the value of <b>id</b> is not <b>null</b>.</li> <li>● The bandwidth ID must be specified if the bandwidth type is set to <b>WHOLE</b>.</li> <li>● The bandwidth type cannot be <b>WHOLE</b> for IPv6 EIPs.</li> </ul>
billing_info	No	String	<p>Specifies bandwidth billing information.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>1024</b></p>
id	No	String	<p>Specifies the ID of the shared bandwidth to which the IP address bound to the load balancer is added.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>● The value is the bandwidth ID when <b>share_type</b> is set to <b>WHOLE</b>.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>

**Table 5-25** CreateLoadbalancerAutoscalingOption

Parameter	Mandatory	Type	Description
enable	Yes	Boolean	Specifies whether to enable elastic scaling for the load balancer. Default: <b>false</b>
min_l7_flavor_id	No	String	Specifies the ID of the minimum Layer-7 flavor for elastic scaling. This parameter cannot be left blank if there are HTTP or HTTPS listeners. This parameter has been discarded but still can be passed for compatibility reasons. If you specify this parameter, you will be charged for the minimum Layer-7 flavor. Minimum: <b>1</b> Maximum: <b>36</b>

## Response Parameters

Status code: 201

**Table 5-26** Response body parameters

Parameter	Type	Description
loadbalancer	<b>LoadBalancer</b> object	Specifies the load balancer.
loadbalancer_id	String	Specifies the load balancer ID. This parameter is unsupported. Please do not use it. Minimum: <b>0</b> Maximum: <b>36</b>

Parameter	Type	Description
order_id	String	Specifies the order No. (This parameter is returned when the billing mode of the load balancer is yearly/monthly.) This parameter is unsupported. Please do not use it. Minimum: <b>0</b> Maximum: <b>36</b>
request_id	String	Specifies the request ID. The value is automatically generated. Minimum: <b>0</b> Maximum: <b>36</b>

**Table 5-27** LoadBalancer

Parameter	Type	Description
id	String	Specifies the load balancer ID.
description	String	Provides supplementary information about the load balancer. Minimum: <b>1</b> Maximum: <b>255</b>
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ACTIVE</b>: The load balancer is successfully provisioned.</li><li>● <b>PENDING_DELETE</b>: The load balancer is being deleted.</li></ul>
admin_state_up	Boolean	Specifies the administrative status of the load balancer. The value can be <b>true</b> or <b>false</b> . <b>true</b> indicates the load balancer is enabled and <b>false</b> indicates the load balancer is disabled.
provider	String	Specifies the provider of the load balancer. The value can only be <b>vlb</b> .
pools	Array of <b>PoolRef</b> objects	Lists the IDs of backend server groups associated with the load balancer.
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners added to the load balancer.

Parameter	Type	Description
operating_status	String	Specifies the operating status of the load balancer. The value can only be <b>ONLINE</b> , indicating that the load balancer is running normally.
name	String	Specifies the load balancer name.
project_id	String	Specifies the project ID of the load balancer.
vip_subnet_cidr_id	String	Specifies the ID of the IPv4 subnet where the load balancer resides.
vip_address	String	Specifies the private IPv4 address bound to the load balancer.
vip_port_id	String	Specifies the ID of the port bound to the private IPv4 address of the load balancer.
tags	Array of <b>Tag</b> objects	Lists the tags added to the load balancer.
created_at	String	Specifies the time when the load balancer was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
updated_at	String	Specifies the time when the load balancer was updated, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
guaranteed	Boolean	Specifies whether the load balancer is a dedicated load balancer. <ul style="list-style-type: none"><li>• <b>true</b> (default): The load balancer is a dedicated load balancer.</li><li>• <b>false</b>: The load balancer is a shared load balancer.</li></ul>
vpc_id	String	Specifies the ID of the VPC where the load balancer resides.
eips	Array of <b>EipInfo</b> objects	Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer. This parameter has the same meaning as <b>publicips</b> .
ipv6_vip_address	String	Specifies the IPv6 address bound to the load balancer.
ipv6_vip_virtual_subnet_id	String	Specifies the ID of the IPv6 subnet where the load balancer resides.
ipv6_vip_port_id	String	Specifies the ID of the port bound to the IPv6 address of the load balancer.

Parameter	Type	Description
availability_zone_list	Array of strings	Specifies the list of AZs where the load balancer is created.
enterprise_project_id	String	Specifies the enterprise project ID. If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project. "0" is not a valid enterprise project ID and cannot be used in the APIs for creating, updating the load balancer, or querying details of the load balancer.
billing_info	String	Provides resource billing information. <ul style="list-style-type: none"> <li>If the value is left blank, the resource is billed in pay-per-use mode.</li> <li>If the value is not left blank, the resource is billed on a yearly/monthly basis. The value is in the format of <i>order_id:product_id:region_id:project_id</i>, for example, CS2107161019CDJZZ:OFFI569702121789763584:az1:057ef081eb00d2732fd1c01a9be75e6f. This parameter is unsupported. Please do not use it.</li> </ul> <p>Minimum: 1 Maximum: 1024</p>
l4_flavor_id	String	Specifies the ID of a flavor at Layer 4. If <b>autoscaling.enable</b> is set to <b>true</b> , this parameter indicates the ID of the maximum flavor. If <b>l4</b> is specified, you will be charged by the specifications you select. If <b>L4_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it. Minimum: 1 Maximum: 255
l4_scale_flavor_id	String	Specifies the ID of the reserved flavor at Layer 4. This parameter is unsupported. Please do not use it. Minimum: 1 Maximum: 255

Parameter	Type	Description
<code>l7_flavor_id</code>	String	<p>Specifies the ID of a flavor at Layer 7. If <b>autoscaling.enable</b> is set to <b>true</b>, this parameter indicates the ID of the maximum flavor.</p> <p>If <b>l7</b> is specified, you will be charged by the specifications you select.</p> <p>If <b>L7_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
<code>l7_scale_flavor_id</code>	String	<p>Specifies the ID of the reserved flavor at Layer 7.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
<code>publicips</code>	Array of <b>PublicIpInfo</b> objects	<p>Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer.</p> <p>This parameter has the same meaning as <b>eips</b>.</p>
<code>global_eips</code>	Array of <b>GlobalEipInfo</b> objects	<p>Specifies the global EIP bound to the load balancer. Only the first global EIP specified under <b>global_eips</b> will be bound.</p>
<code>elb_virsubnet_ids</code>	Array of strings	<p>Lists the IDs of subnets on the downstream plane.</p>
<code>elb_virsubnet_type</code>	String	<p>Specifies the type of the subnet on the downstream plane.</p> <ul style="list-style-type: none"><li>• <b>ipv4</b>: IPv4 subnet</li><li>• <b>dualstack</b>: subnet that supports IPv4/IPv6 dual stack</li></ul>

Parameter	Type	Description
ip_target_enable	Boolean	<p>Specifies whether to enable IP as a backend. The value can be <b>true</b> (enable IP as a backend) or <b>false</b> (disable IP as a backend). This function cannot be disabled after it is enabled.</p> <p>If you enable this function, you can add servers in a VPC connected through a VPC peering connection, in a VPC connected through a cloud connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.</p> <p>If you enable this function for a dedicated load balancer deployed in a shared VPC, ensure that a VPC peering connection has been created.</p> <p>This function is available only for dedicated load balancers.</p>
frozen_scene	String	<p>Specifies the scenario where the load balancer is frozen. Multiple values are separated using commas (,).</p> <p>This parameter is unsupported. Please do not use it.</p>
ipv6_bandwidth	<b>BandwidthRef</b> object	<p>Specifies the ID of the bandwidth used by an IPv6 address. This parameter is available only when you create or update a load balancer with a public IPv6 address. If you use a new IPv6 address and specify a shared bandwidth, the IPv6 address will be added to the shared bandwidth.</p>
deletion_protection_enable	Boolean	<p>Specifies whether to enable deletion protection for the load balancer.</p> <ul style="list-style-type: none"> <li>● <b>true</b>: Enable deletion protection.</li> <li>● <b>false</b> (default): Disable deletion protection.</li> </ul> <p><b>NOTE</b> Disable deletion protection for all your resources before deleting your account.</p>

Parameter	Type	Description
autoscaling	<a href="#">AutoscalingRef</a> object	Specifies information about elastic scaling. If elastic scaling is enabled, the load balancer specifications can be automatically adjusted based on incoming traffic.  Note: <ul style="list-style-type: none"> <li>This parameter is only available for users on the whitelist.</li> <li>If elastic scaling is enabled, <b>l4_flavor_id</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>l7_flavor_id</b> indicates the maximum Layer-7 flavor for elastic scaling.</li> </ul> This parameter is unsupported. Please do not use it.
public_border_group	String	Specifies the AZ group to which the load balancer belongs.
charge_mode	String	Specifies the billing mode. The value can be one of the following: <ul style="list-style-type: none"> <li><b>flavor</b>: billed by the specifications you will select</li> <li><b>lcu</b>: billed by LCU usage</li> </ul>
waf_failure_action	String	Specifies traffic distributing policies when the WAF is faulty. <ul style="list-style-type: none"> <li><b>discard</b>: Traffic will not be distributed.</li> <li><b>forward</b>: Traffic will be distributed to the default backend servers.</li> </ul> Note: This parameter takes effect only when WAF is enabled for the load balancer. This parameter is unsupported. Please do not use it.
log_group_id	String	Specifies the ID of the log group that is associated with the load balancer.
log_topic_id	String	Specifies the ID of the log topic that is associated with the load balancer.

**Table 5-28** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.



**Table 5-29** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-30** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-31** EipInfo

Parameter	Type	Description
eip_id	String	eip_id
eip_address	String	eip_address
ip_version	Integer	Specifies the IP version. <b>4</b> indicates IPv4, and <b>6</b> indicates IPv6.

**Table 5-32** PublicIpInfo

Parameter	Type	Description
publicip_id	String	Specifies the EIP ID.
publicip_address	String	Specifies the IP address.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> (IPv4) or <b>6</b> (IPv6).

**Table 5-33** GlobalEipInfo

Parameter	Type	Description
global_eip_id	String	Specifies the ID of the global EIP.

Parameter	Type	Description
global_eip_address	String	Specifies the global EIP.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> and <b>6</b> . <b>4</b> indicates an IPv4 address, and <b>6</b> indicates an IPv6 address.

**Table 5-34** BandwidthRef

Parameter	Type	Description
id	String	Specifies the shared bandwidth ID.

**Table 5-35** AutoscalingRef

Parameter	Type	Description
enable	Boolean	Specifies whether to enable elastic scaling for the load balancer. <ul style="list-style-type: none"><li>• <b>true</b>: Enable elastic scaling.</li><li>• <b>false</b> (default): Disable elastic scaling.</li></ul>
min_l7_flavor_id	String	Specifies the ID of the minimum Layer-7 flavor for elastic scaling. This parameter cannot be left blank if there are HTTP or HTTPS listeners.  This parameter has been discarded but still can be passed for compatibility reasons. If you specify this parameter, you will be charged for the minimum Layer-7 flavor  Minimum: <b>1</b> Maximum: <b>36</b>

## Example Requests

- Example 1: Creating a load balancer with a private IPv4 address

```
POST https://{ELB_Endpoint}/v3/060576798a80d5762fafc01a9b5eedc7/elb/loadbalancers
```

```
{
  "loadbalancer" : {
    "name" : "loadbalancer",
    "description" : "simple lb",
    "vip_subnet_cidr_id" : "1992ec06-f364-4ae3-b936-6a8cc24633b7",
    "admin_state_up" : true,
    "availability_zone_list" : [ "AZ1" ]
  }
}
```

- Example 2: Creating a load balancer with an IPv4 EIP

```
POST https://{ELB_Endpoint}/v3/060576782980d5762f9ec014dd2f1148/elb/loadbalancers

{
  "loadbalancer" : {
    "vip_subnet_cidr_id" : "e6e9271d-aef4-48f0-a93a-ccc7b09032c1",
    "availability_zone_list" : [ "AZ1" ],
    "admin_state_up" : true,
    "publicip" : {
      "network_type" : "5_bgp",
      "bandwidth" : {
        "size" : 2,
        "share_type" : "PER",
        "charge_mode" : "bandwidth",
        "name" : "bandwidth_test"
      }
    }
  },
  "name" : "elb_eip-test"
}
```

## Example Responses

### Status code: 201

Normal response to POST requests.

```
{
  "loadbalancer" : {
    "name" : "my_loadbalancer",
    "id" : "29cc669b-3ac8-4498-9094-bdf6193425c2",
    "project_id" : "060576798a80d5762fafc01a9b5eedc7",
    "description" : "",
    "vip_port_id" : "98697944-0cc7-4d3b-a829-001c2fb82232",
    "vip_address" : "192.168.0.214",
    "admin_state_up" : true,
    "provisioning_status" : "ACTIVE",
    "operating_status" : "ONLINE",
    "listeners" : [ ],
    "pools" : [ ],
    "tags" : [ {
      "key" : "tag_key",
      "value" : "tag1"
    } ],
    "provider" : "vlb",
    "created_at" : "2023-03-22T07:59:57Z",
    "updated_at" : "2023-03-22T07:59:59Z",
    "vpc_id" : "a1f33a4c-95b9-48a7-9350-684e2ed844b3",
    "enterprise_project_id" : "134f2181-5720-47e7-bd78-1356ed3737d6",
    "availability_zone_list" : [ ],
    "ipv6_vip_address" : null,
    "ipv6_vip_virusubnet_id" : null,
    "ipv6_vip_port_id" : null,
    "publicips" : [ {
      "publicip_id" : "3388574a-4f6f-4471-869e-97d74d21eee9",
      "publicip_address" : "88.88.87.205",
      "ip_version" : 4
    } ],
    "global_eips" : [ ],
    "elb_virusubnet_ids" : [ ],
    "elb_virusubnet_type" : null,
    "ip_target_enable" : false,
    "autoscaling" : {
      "enable" : false,
      "min_l7_flavor_id" : ""
    }
  },
  "frozen_scene" : null,
  "public_border_group" : "center",
  "eips" : [ {
    "eip_id" : "3388574a-4f6f-4471-869e-97d74d21eee9",

```

```
"eip_address" : "88.88.87.205",
"ip_version" : 4
}],
"guaranteed" : false,
"billing_info" : null,
"l4_flavor_id" : null,
"l4_scale_flavor_id" : null,
"l7_flavor_id" : null,
"l7_scale_flavor_id" : null,
"waf_failure_action" : "",
"vip_subnet_cidr_id" : "abf31f3b-706e-4e55-a6dc-f2fcc707fd3a"
},
"request_id" : "bf29597181cb81b30d19f1a0115a157d"
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.4.2 Querying Load Balancers

### Function

This API is used to query all load balancers.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/loadbalancers

**Table 5-36** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	This parameter has the same meaning as <b>eips</b> . Minimum: <b>1</b> Maximum: <b>255</b>

**Table 5-37** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If this parameter is not specified, the first page will be queried.</li><li>• This parameter cannot be left blank or set to an invalid ID.</li></ul>
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>

Parameter	Mandatory	Type	Description
id	No	Array	Specifies the load balancer ID. Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .
name	No	Array	Specifies the load balancer name. Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .
description	No	Array	Provides supplementary information about the load balancer. Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xxx</i> .
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. This parameter is unsupported. Please do not use it.
provisioning_status	No	Array	Specifies the provisioning status of the load balancer. <ul style="list-style-type: none"><li>● <b>ACTIVE</b>: The load balancer is successfully provisioned.</li><li>● <b>PENDING_DELETE</b>: The load balancer is being deleted.</li></ul> Multiple provisioning statuses can be queried in the format of <i>provisioning_status=xxx&amp;provisioning_status=xxx</i> .
operating_status	No	Array	Specifies the operating status of the load balancer. <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The load balancer is working normally.</li><li>● <b>FROZEN</b>: The load balancer has been frozen.</li></ul> Multiple operating statuses can be queried in the format of <i>operating_status=xxx&amp;operating_status=xxx</i> .

Parameter	Mandatory	Type	Description
guaranteed	No	Boolean	Specifies whether the load balancer is a dedicated load balancer. <ul style="list-style-type: none"><li>• <b>false</b>: The load balancer is a shared load balancer.</li><li>• <b>true</b>: The load balancer is a dedicated load balancer.</li></ul>
vpc_id	No	Array	Specifies the ID of the VPC where the load balancer resides. Multiple IDs can be queried in the format of <i>vpc_id=xxx&amp;vpc_id=xxx</i> .
vip_port_id	No	Array	Specifies the ID of the port bound to the private IPv4 address of the load balancer. Multiple IDs can be queried in the format of <i>vip_port_id=xxx&amp;vip_port_id=xxx</i> .
vip_address	No	Array	Specifies the virtual IP address bound to the load balancer. Multiple virtual IP addresses can be queried in the format of <i>vip_address=xxx&amp;vip_address=xxx</i> .
vip_subnet_cidr_id	No	Array	Specifies the ID of the IPv4 subnet where the load balancer resides. Multiple IDs can be queried in the format of <i>vip_subnet_cidr_id=xxx&amp;vip_subnet_cidr_id=xxx</i> .
ipv6_vip_port_id	No	Array	Specifies the ID of the port bound to the IPv6 address of the load balancer. Multiple ports can be queried in the format of <i>ipv6_vip_port_id=xxx&amp;ipv6_vip_port_id=xxx</i> .

Parameter	Mandatory	Type	Description
ipv6_vip_address	No	Array	Specifies the IPv6 address bound to the load balancer. Multiple IPv6 addresses can be queried in the format of <i>ipv6_vip_address=xxx&amp;ipv6_vip_address=xxx</i> .
ipv6_vip_virusubnet_id	No	Array	Specifies the ID of the IPv6 subnet where the load balancer resides. Multiple IDs can be queried in the format of <i>ipv6_vip_virusubnet_id=xxx&amp;ipv6_vip_virusubnet_id=xxx</i> .
eips	No	Array	Specifies the IPv4 EIP bound to the load balancer. The following is an example: "eips": [ { "eip_id": "e9b72a9d-4275-455e-a724-853504e4d9c6", "eip_address": "88.88.14.122", "ip_version": 4 } ] Multiple EIPs can be queried. <ul style="list-style-type: none"> <li>• If <b>eip_id</b> is used as the query condition, the format is <i>eips=eip_id=xxx&amp;eips=eip_id=xxx</i>.</li> <li>• If <b>eip_address</b> is used as the query condition, the format is <i>eips=eip_address=xxx&amp;eips=eip_address=xxx</i>.</li> <li>• If <b>ip_version</b> is used as the query condition, the format is <i>eips=ip_version=xxx&amp;eips=ip_version=xxx</i>.</li> </ul> Note that this parameter has the same meaning as <b>publicips</b> .



Parameter	Mandatory	Type	Description
publicips	No	Array	<p>Specifies the IPv4 EIP bound to the load balancer. The following is an example:</p> <pre>"publicips": [ { "publicip_id": "e9b72a9d-4275-455e-a724-853504e4d9c6", "publicip_address": "88.88.14.122", "ip_version": 4 } ]</pre> <p>Multiple EIPs can be queried.</p> <ul style="list-style-type: none"> <li>• If <b>publicip_id</b> is used as the query condition, the format is <i>publicips=publicip_id=xxx&amp;publicips=publicip_id=xxx.</i></li> <li>• If <b>publicip_address</b> is used as the query condition, the format is <i>*publicips=publicip_address=xxx&amp;publicips=publicip_address=xxx.</i></li> <li>• If <b>publicip_address</b> is used as the query condition, the format is <i>publicips=ip_version=xxx&amp;publicips=ip_version=xxx.</i></li> </ul> <p>Note that this parameter has the same meaning as <b>eips</b>.</p>
availability_zone_list	No	Array	<p>Specifies the list of AZs where the load balancer is created.</p> <p>Multiple AZs can be queried in the format of <i>availability_zone_list=xxx&amp;availability_zone_list=xxx.</i></p>
l4_flavor_id	No	Array	<p>Specifies the ID of a flavor at Layer 4.</p> <p>Multiple IDs can be queried in the format of <i>l4_flavor_id=xxx&amp;l4_flavor_id=xxx.</i></p> <p>This parameter is unsupported. Please do not use it.</p>

Parameter	Mandatory	Type	Description
<code>l4_scale_flavor_id</code>	No	Array	<p>Specifies the ID of the elastic flavor at Layer 4, which is reserved for now.</p> <p>Multiple flavors can be queried in the format of <code>l4_scale_flavor_id=xxx&amp;l4_scale_flavor_id=xxx</code>.</p> <p>This parameter is unsupported. Please do not use it.</p>
<code>l7_flavor_id</code>	No	Array	<p>Specifies the ID of a flavor at Layer 7.</p> <p>Multiple flavors can be queried in the format of <code>l7_flavor_id=xxx&amp;l7_flavor_id=xxx</code>.</p> <p>This parameter is unsupported. Please do not use it.</p>
<code>l7_scale_flavor_id</code>	No	Array	<p>Specifies the ID of the elastic flavor at Layer 7. Multiple flavors can be queried in the format of <code>l7_scale_flavor_id=xxx&amp;l7_scale_flavor_id=xxx</code>. This parameter is unsupported. Please do not use it.</p>
<code>member_device_id</code>	No	Array	<p>Specifies the ID of the cloud server that is associated with the load balancer as a backend server. This is a query parameter and will not be included in the response.</p> <p>Multiple IDs can be queried in the format of <code>member_device_id=xxx&amp;member_device_id=xxx</code>.</p>

Parameter	Mandatory	Type	Description
member_address	No	Array	<p>Specifies the private IP address of the cloud server that is associated with the load balancer as a backend server. This is a query parameter and will not be included in the response.</p> <p>Multiple private IP addresses can be queried in the format of <i>member_address=xxx&amp;member_address=xxx</i>.</p>
enterprise_project_id	No	Array	<p>Specifies the enterprise project ID.</p> <ul style="list-style-type: none"><li>• If this parameter is not passed, resources in the default enterprise project are queried, and authentication is performed based on the default enterprise project.</li><li>• If this parameter is passed, its value can be the ID of an existing enterprise project (resources in the specific enterprise project are required) or <b>all_granted_eps</b> (resources in all enterprise projects are queried).</li></ul> <p>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i>.</p>
ip_version	No	Array	<p>Specifies the IP version. The value can be <b>4</b> (IPv4) or <b>6</b> (IPv6).</p> <p>Multiple versions can be queried in the format of <i>ip_version=xxx&amp;ip_version=xxx</i>.</p>
deletion_protection_enable	No	Boolean	<p>Specifies whether to enable deletion protection.</p> <ul style="list-style-type: none"><li>• <b>true</b>: Enable deletion protection.</li><li>• <b>false</b>: Disable deletion protection.</li></ul>

Parameter	Mandatory	Type	Description
elb_virsubnet_type	No	Array	Specifies the type of the subnet on the downstream plane. <ul style="list-style-type: none"> <li>• <b>ipv4</b>: IPv4 subnet</li> <li>• <b>dualstack</b>: subnet that supports IPv4/IPv6 dual stack</li> </ul> Multiple values query can be queried in the format of <i>elb_virsubnet_type=ipv4&amp;elb_virsubnet_type=dualstack</i> .
autoscaling	No	Array	Specifies whether to enable elastic scaling. Example: "autoscaling": { "enable": "true" } <p>Multiple values query can be queried in the format of <i>autoscaling=enable=true&amp;autoscaling=enable=false</i>.</p> This parameter is unsupported. Please do not use it.

## Request Parameters

**Table 5-38** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-39** Response body parameters

Parameter	Type	Description
loadbalancers	Array of <b>LoadBalancer</b> objects	Lists the load balancers.

Parameter	Type	Description
page_info	<a href="#">PageInfo</a> object	Shows pagination information about load balancers.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-40** LoadBalancer

Parameter	Type	Description
id	String	Specifies the load balancer ID.
description	String	Provides supplementary information about the load balancer. Minimum: <b>1</b> Maximum: <b>255</b>
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ACTIVE</b>: The load balancer is successfully provisioned.</li><li>● <b>PENDING_DELETE</b>: The load balancer is being deleted.</li></ul>
admin_state_up	Boolean	Specifies the administrative status of the load balancer. The value can be <b>true</b> or <b>false</b> . <b>true</b> indicates the load balancer is enabled and <b>false</b> indicates the load balancer is disabled.
provider	String	Specifies the provider of the load balancer. The value can only be <b>vlb</b> .
pools	Array of <a href="#">PoolRef</a> objects	Lists the IDs of backend server groups associated with the load balancer.
listeners	Array of <a href="#">ListenerRef</a> objects	Lists the IDs of listeners added to the load balancer.
operating_status	String	Specifies the operating status of the load balancer. The value can only be <b>ONLINE</b> , indicating that the load balancer is running normally.
name	String	Specifies the load balancer name.
project_id	String	Specifies the project ID of the load balancer.

Parameter	Type	Description
<code>vip_subnet_cidr_id</code>	String	Specifies the ID of the IPv4 subnet where the load balancer resides.
<code>vip_address</code>	String	Specifies the private IPv4 address bound to the load balancer.
<code>vip_port_id</code>	String	Specifies the ID of the port bound to the private IPv4 address of the load balancer.
<code>tags</code>	Array of <b>Tag</b> objects	Lists the tags added to the load balancer.
<code>created_at</code>	String	Specifies the time when the load balancer was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
<code>updated_at</code>	String	Specifies the time when the load balancer was updated, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
<code>guaranteed</code>	Boolean	Specifies whether the load balancer is a dedicated load balancer. <ul style="list-style-type: none"><li>• <b>true</b> (default): The load balancer is a dedicated load balancer.</li><li>• <b>false</b>: The load balancer is a shared load balancer.</li></ul>
<code>vpc_id</code>	String	Specifies the ID of the VPC where the load balancer resides.
<code>eips</code>	Array of <b>EipInfo</b> objects	Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer. This parameter has the same meaning as <b>publicips</b> .
<code>ipv6_vip_address</code>	String	Specifies the IPv6 address bound to the load balancer.
<code>ipv6_vip_subnet_id</code>	String	Specifies the ID of the IPv6 subnet where the load balancer resides.
<code>ipv6_vip_port_id</code>	String	Specifies the ID of the port bound to the IPv6 address of the load balancer.
<code>availability_zone_list</code>	Array of strings	Specifies the list of AZs where the load balancer is created.

Parameter	Type	Description
enterprise_project_id	String	<p>Specifies the enterprise project ID.</p> <p>If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project.</p> <p>"0" is not a valid enterprise project ID and cannot be used in the APIs for creating, updating the load balancer, or querying details of the load balancer.</p>
billing_info	String	<p>Provides resource billing information.</p> <ul style="list-style-type: none"> <li>If the value is left blank, the resource is billed in pay-per-use mode.</li> <li>If the value is not left blank, the resource is billed on a yearly/monthly basis. The value is in the format of <i>order_id:product_id:region_id:project_id</i>, for example, CS2107161019CDJZZ:OFFI569702121789763584:az1:057ef081eb00d2732fd1c01a9be75e6f. This parameter is unsupported. Please do not use it.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>1024</b></p>
l4_flavor_id	String	<p>Specifies the ID of a flavor at Layer 4. If <b>autoscaling.enable</b> is set to <b>true</b>, this parameter indicates the ID of the maximum flavor.</p> <p>If <b>l4</b> is specified, you will be charged by the specifications you select.</p> <p>If <b>l4_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
l4_scale_flavor_id	String	<p>Specifies the ID of the reserved flavor at Layer 4.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>

Parameter	Type	Description
l7_flavor_id	String	<p>Specifies the ID of a flavor at Layer 7. If <b>autoscaling.enable</b> is set to <b>true</b>, this parameter indicates the ID of the maximum flavor.</p> <p>If <b>l7</b> is specified, you will be charged by the specifications you select.</p> <p>If <b>L7_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
l7_scale_flavor_id	String	<p>Specifies the ID of the reserved flavor at Layer 7.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
publicips	Array of <b>PublicIpInfo</b> objects	<p>Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer.</p> <p>This parameter has the same meaning as <b>eips</b>.</p>
global_eips	Array of <b>GlobalEipInfo</b> objects	<p>Specifies the global EIP bound to the load balancer. Only the first global EIP specified under <b>global_eips</b> will be bound.</p>
elb_virsubnet_ids	Array of strings	<p>Lists the IDs of subnets on the downstream plane.</p>
elb_virsubnet_type	String	<p>Specifies the type of the subnet on the downstream plane.</p> <ul style="list-style-type: none"> <li>• <b>ipv4</b>: IPv4 subnet</li> <li>• <b>dualstack</b>: subnet that supports IPv4/IPv6 dual stack</li> </ul>



Parameter	Type	Description
ip_target_enable	Boolean	<p>Specifies whether to enable IP as a backend. The value can be <b>true</b> (enable IP as a backend) or <b>false</b> (disable IP as a backend). This function cannot be disabled after it is enabled.</p> <p>If you enable this function, you can add servers in a VPC connected through a VPC peering connection, in a VPC connected through a cloud connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.</p> <p>If you enable this function for a dedicated load balancer deployed in a shared VPC, ensure that a VPC peering connection has been created.</p> <p>This function is available only for dedicated load balancers.</p>
frozen_scene	String	<p>Specifies the scenario where the load balancer is frozen. Multiple values are separated using commas (,).</p> <p>This parameter is unsupported. Please do not use it.</p>
ipv6_bandwidth	<b>BandwidthRef</b> object	<p>Specifies the ID of the bandwidth used by an IPv6 address. This parameter is available only when you create or update a load balancer with a public IPv6 address. If you use a new IPv6 address and specify a shared bandwidth, the IPv6 address will be added to the shared bandwidth.</p>
deletion_protection_enable	Boolean	<p>Specifies whether to enable deletion protection for the load balancer.</p> <ul style="list-style-type: none"><li>● <b>true</b>: Enable deletion protection.</li><li>● <b>false</b> (default): Disable deletion protection.</li></ul> <p><b>NOTE</b> Disable deletion protection for all your resources before deleting your account.</p>

Parameter	Type	Description
autoscaling	<a href="#">AutoscalingRef</a> object	Specifies information about elastic scaling. If elastic scaling is enabled, the load balancer specifications can be automatically adjusted based on incoming traffic.  Note: <ul style="list-style-type: none"> <li>This parameter is only available for users on the whitelist.</li> <li>If elastic scaling is enabled, <b>l4_flavor_id</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>l7_flavor_id</b> indicates the maximum Layer-7 flavor for elastic scaling.</li> </ul> This parameter is unsupported. Please do not use it.
public_border_group	String	Specifies the AZ group to which the load balancer belongs.
charge_mode	String	Specifies the billing mode. The value can be one of the following: <ul style="list-style-type: none"> <li><b>flavor</b>: billed by the specifications you will select</li> <li><b>lcu</b>: billed by LCU usage</li> </ul>
waf_failure_action	String	Specifies traffic distributing policies when the WAF is faulty. <ul style="list-style-type: none"> <li><b>discard</b>: Traffic will not be distributed.</li> <li><b>forward</b>: Traffic will be distributed to the default backend servers.</li> </ul> Note: This parameter takes effect only when WAF is enabled for the load balancer. This parameter is unsupported. Please do not use it.
log_group_id	String	Specifies the ID of the log group that is associated with the load balancer.
log_topic_id	String	Specifies the ID of the log topic that is associated with the load balancer.

**Table 5-41** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.

**Table 5-42** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-43** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-44** EipInfo

Parameter	Type	Description
eip_id	String	eip_id
eip_address	String	eip_address
ip_version	Integer	Specifies the IP version. <b>4</b> indicates IPv4, and <b>6</b> indicates IPv6.

**Table 5-45** PublicIpInfo

Parameter	Type	Description
publicip_id	String	Specifies the EIP ID.
publicip_address	String	Specifies the IP address.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> (IPv4) or <b>6</b> (IPv6).

**Table 5-46** GlobalEipInfo

Parameter	Type	Description
global_eip_id	String	Specifies the ID of the global EIP.

Parameter	Type	Description
global_eip_address	String	Specifies the global EIP.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> and <b>6</b> . <b>4</b> indicates an IPv4 address, and <b>6</b> indicates an IPv6 address.

**Table 5-47** BandwidthRef

Parameter	Type	Description
id	String	Specifies the shared bandwidth ID.

**Table 5-48** AutoscalingRef

Parameter	Type	Description
enable	Boolean	Specifies whether to enable elastic scaling for the load balancer. <ul style="list-style-type: none"><li>• <b>true</b>: Enable elastic scaling.</li><li>• <b>false</b> (default): Disable elastic scaling.</li></ul>
min_l7_flavor_id	String	Specifies the ID of the minimum Layer-7 flavor for elastic scaling. This parameter cannot be left blank if there are HTTP or HTTPS listeners. This parameter has been discarded but still can be passed for compatibility reasons. If you specify this parameter, you will be charged for the minimum Layer-7 flavor Minimum: <b>1</b> Maximum: <b>36</b>

**Table 5-49** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

## Example Requests

- Querying load balancers on each page

```
GET https://{ELB_Endpoint}/v3/b2782e6708b8475c993e6064bc456bf8/elb/loadbalancers?limit=2&marker=87627cb6-9ff1-4580-984f-cc564fa9fc34
```

- Querying load balancers using multiple IDs

```
GET https://{ELB_Endpoint}/v3/b2782e6708b8475c993e6064bc456bf8/elb/loadbalancers?id=87627cb6-9ff1-4580-984f-cc564fa9fc34&id=09e86f09-03fc-440e-8132-03f3e149e979
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "request_id": "46b7d911-cece-408c-a2cc-55c78ab025d8",
  "loadbalancers": [ {
    "id": "65672f7e-2024-4c39-9198-98249da479c5",
    "project_id": "057ef081eb00d2732fd1c01a9be75e6f",
    "name": "dxq_2021_07_26_11_12_37",
    "description": "",
    "vip_port_id": "b289f890-a6fa-4405-a9cc-fe62b8a3bed0",
    "vip_address": "172.16.0.152",
    "admin_state_up": true,
    "provisioning_status": "ACTIVE",
    "operating_status": "ONLINE",
    "listeners": [ {
      "id": "dc9572eb-a5b2-47b3-a982-44892d833892"
    } ],
    "pools": [ {
      "id": "dc6b01c4-f704-4427-a4c2-21cd5f58d177"
    } ],
    "tags": [ ],
    "provider": "vlb",
    "created_at": "2021-07-26T03:12:37Z",
    "updated_at": "2021-07-26T03:12:37Z",
    "vpc_id": "6e0ee31f-7a46-4530-b32f-ce41f30959d4",
    "enterprise_project_id": "0",
    "availability_zone_list": [ "az1" ],
    "ipv6_vip_address": "2001:db8:a583:4cb:d6b8:f8b4:4211:fe72",
    "ipv6_vip_virusubnet_id": "0b9e3c5e-3ec8-46b3-bab9-80b1450e59ee",
    "ipv6_vip_port_id": "5186bb47-24e5-4171-b795-62d22846db9b",
    "publicips": [ ],
    "elb_virusubnet_ids": [ "0b9e3c5e-3ec8-46b3-bab9-80b1450e59ee" ],
    "elb_virusubnet_type": "dualstack",
    "ip_target_enable": false,
    "autoscaling": {
      "enable": false,
      "min_l7_flavor_id": ""
    },
    "frozen_scene": null,
    "eips": [ ],
    "guaranteed": true,
    "billing_info": null,
    "l4_flavor_id": "aa06b26b-9ff9-43c6-92b9-41e0f746bca6",
    "l4_scale_flavor_id": null,
    "l7_flavor_id": "e2a5675c-a181-444e-b9a5-17b052dc7fb9",
    "l7_scale_flavor_id": null,
    "vip_subnet_cidr_id": "96e52038-7983-462f-8a96-415d8a280b13",
    "public_border_group": "center",
    "log_topic_id": null,
    "log_group_id": null
  }, {
    "id": "cce5318e-c79a-4f68-94a2-9fb285c6efbe",
    "project_id": "057ef081eb00d2732fd1c01a9be75e6f",
    "name": "elb-reset",
  }
]
```

```

"description" : "",
"vip_port_id" : null,
"vip_address" : null,
"admin_state_up" : true,
"provisioning_status" : "ACTIVE",
"operating_status" : "ONLINE",
"listeners" : [ {
  "id" : "0ae21c37-8b90-4e73-8a35-eedde6d2538c"
} ],
"pools" : [ {
  "id" : "904ecca6-8ebb-4974-9c5c-61d1d66fba17"
} ],
"tags" : [ ],
"provider" : "vlb",
"created_at" : "2021-07-26T02:46:31Z",
"updated_at" : "2021-07-26T02:46:59Z",
"vpc_id" : "59cb11ef-f185-49ba-92af-0539e8ff9734",
"enterprise_project_id" : "0",
"availability_zone_list" : [ "az1" ],
"ipv6_vip_address" : null,
"ipv6_vip_virusubnet_id" : null,
"ipv6_vip_port_id" : null,
"publicips" : [ {
  "publicip_id" : "0c07e04d-e2f9-41ad-b934-f58a65b6734d",
  "publicip_address" : "97.97.2.171",
  "ip_version" : 4
} ],
"elb_virusubnet_ids" : [ "7f817f9c-8731-4002-9e47-18cb8d431787" ],
"elb_virusubnet_type" : "dualstack",
"ip_target_enable" : false,
"autoscaling" : {
  "enable" : false,
  "min_l7_flavor_id" : ""
},
"frozen_scene" : null,
"eips" : [ {
  "eip_id" : "0c07e04d-e2f9-41ad-b934-f58a65b6734d",
  "eip_address" : "97.97.2.171",
  "ip_version" : 4
} ],
"guaranteed" : true,
"billing_info" : null,
"l4_flavor_id" : "636ba721-935a-4ca5-a685-8076ce0e4148",
"l4_scale_flavor_id" : null,
"l7_flavor_id" : null,
"l7_scale_flavor_id" : null,
"vip_subnet_cidr_id" : null,
"public_border_group" : "center",
"log_topic_id" : null,
"log_group_id" : null
} ],
"page_info" : {
  "next_marker" : "cce5318e-c79a-4f68-94a2-9fb285c6efbe",
  "previous_marker" : "65672f7e-2024-4c39-9198-98249da479c5",
  "current_count" : 2
}
}

```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.4.3 Viewing Details of a Load Balancer

### Function

This API is used to view details of a load balancer.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/loadbalancers/{loadbalancer\_id}

**Table 5-50** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	Yes	String	Specifies the load balancer ID.

### Request Parameters

**Table 5-51** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

**Status code: 200**

**Table 5-52** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
loadbalancer	<a href="#">LoadBalancer</a> object	Specifies the load balancer.

**Table 5-53** LoadBalancer

Parameter	Type	Description
id	String	Specifies the load balancer ID.
description	String	Provides supplementary information about the load balancer. Minimum: <b>1</b> Maximum: <b>255</b>
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ACTIVE</b>: The load balancer is successfully provisioned.</li><li>● <b>PENDING_DELETE</b>: The load balancer is being deleted.</li></ul>
admin_state_up	Boolean	Specifies the administrative status of the load balancer. The value can be <b>true</b> or <b>false</b> . <b>true</b> indicates the load balancer is enabled and <b>false</b> indicates the load balancer is disabled.
provider	String	Specifies the provider of the load balancer. The value can only be <b>vlb</b> .
pools	Array of <b>PoolRef</b> objects	Lists the IDs of backend server groups associated with the load balancer.
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners added to the load balancer.
operating_status	String	Specifies the operating status of the load balancer. The value can only be <b>ONLINE</b> , indicating that the load balancer is running normally.
name	String	Specifies the load balancer name.
project_id	String	Specifies the project ID of the load balancer.
vip_subnet_cidr_id	String	Specifies the ID of the IPv4 subnet where the load balancer resides.
vip_address	String	Specifies the private IPv4 address bound to the load balancer.
vip_port_id	String	Specifies the ID of the port bound to the private IPv4 address of the load balancer.
tags	Array of <b>Tag</b> objects	Lists the tags added to the load balancer.



Parameter	Type	Description
created_at	String	Specifies the time when the load balancer was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
updated_at	String	Specifies the time when the load balancer was updated, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
guaranteed	Boolean	Specifies whether the load balancer is a dedicated load balancer. <ul style="list-style-type: none"><li>• <b>true</b> (default): The load balancer is a dedicated load balancer.</li><li>• <b>false</b>: The load balancer is a shared load balancer.</li></ul>
vpc_id	String	Specifies the ID of the VPC where the load balancer resides.
eips	Array of <a href="#">EipInfo</a> objects	Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer. This parameter has the same meaning as <b>publicips</b> .
ipv6_vip_address	String	Specifies the IPv6 address bound to the load balancer.
ipv6_vip_virusubnet_id	String	Specifies the ID of the IPv6 subnet where the load balancer resides.
ipv6_vip_port_id	String	Specifies the ID of the port bound to the IPv6 address of the load balancer.
availability_zone_list	Array of strings	Specifies the list of AZs where the load balancer is created.
enterprise_project_id	String	Specifies the enterprise project ID. If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project. "0" is not a valid enterprise project ID and cannot be used in the APIs for creating, updating the load balancer, or querying details of the load balancer.

Parameter	Type	Description
billing_info	String	<p>Provides resource billing information.</p> <ul style="list-style-type: none"><li>If the value is left blank, the resource is billed in pay-per-use mode.</li><li>If the value is not left blank, the resource is billed on a yearly/monthly basis. The value is in the format of <i>order_id:product_id:region_id:project_id</i>, for example, CS2107161019CDJZZ:OFFI569702121789763584:az1:057ef081eb00d2732fd1c01a9be75e6f. This parameter is unsupported. Please do not use it.</li></ul> <p>Minimum: <b>1</b> Maximum: <b>1024</b></p>
l4_flavor_id	String	<p>Specifies the ID of a flavor at Layer 4. If <b>autoscaling.enable</b> is set to <b>true</b>, this parameter indicates the ID of the maximum flavor.</p> <p>If <b>l4</b> is specified, you will be charged by the specifications you select.</p> <p>If <b>L4_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
l4_scale_flavor_id	String	<p>Specifies the ID of the reserved flavor at Layer 4.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
l7_flavor_id	String	<p>Specifies the ID of a flavor at Layer 7. If <b>autoscaling.enable</b> is set to <b>true</b>, this parameter indicates the ID of the maximum flavor.</p> <p>If <b>l7</b> is specified, you will be charged by the specifications you select.</p> <p>If <b>L7_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>

Parameter	Type	Description
<code>l7_scale_flavor_id</code>	String	Specifies the ID of the reserved flavor at Layer 7. This parameter is unsupported. Please do not use it. Minimum: <b>1</b> Maximum: <b>255</b>
<code>publicips</code>	Array of <a href="#">PublicIpInfo</a> objects	Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer. This parameter has the same meaning as <b>eips</b> .
<code>global_eips</code>	Array of <a href="#">GlobalEipInfo</a> objects	Specifies the global EIP bound to the load balancer. Only the first global EIP specified under <b>global_eips</b> will be bound.
<code>elb_virsubnet_ids</code>	Array of strings	Lists the IDs of subnets on the downstream plane.
<code>elb_virsubnet_type</code>	String	Specifies the type of the subnet on the downstream plane. <ul style="list-style-type: none"><li>• <b>ipv4</b>: IPv4 subnet</li><li>• <b>dualstack</b>: subnet that supports IPv4/IPv6 dual stack</li></ul>
<code>ip_target_enable</code>	Boolean	Specifies whether to enable IP as a backend. The value can be <b>true</b> (enable IP as a backend) or <b>false</b> (disable IP as a backend). This function cannot be disabled after it is enabled. If you enable this function, you can add servers in a VPC connected through a VPC peering connection, in a VPC connected through a cloud connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses. If you enable this function for a dedicated load balancer deployed in a shared VPC, ensure that a VPC peering connection has been created. This function is available only for dedicated load balancers.
<code>frozen_scene</code>	String	Specifies the scenario where the load balancer is frozen. Multiple values are separated using commas (,). This parameter is unsupported. Please do not use it.

Parameter	Type	Description
ipv6_bandwidth	<b>BandwidthRef</b> object	Specifies the ID of the bandwidth used by an IPv6 address. This parameter is available only when you create or update a load balancer with a public IPv6 address. If you use a new IPv6 address and specify a shared bandwidth, the IPv6 address will be added to the shared bandwidth.
deletion_protection_enable	Boolean	Specifies whether to enable deletion protection for the load balancer. <ul style="list-style-type: none"><li>● <b>true</b>: Enable deletion protection.</li><li>● <b>false</b> (default): Disable deletion protection.</li></ul> <b>NOTE</b> Disable deletion protection for all your resources before deleting your account.
autoscaling	<b>AutoscalingRef</b> object	Specifies information about elastic scaling. If elastic scaling is enabled, the load balancer specifications can be automatically adjusted based on incoming traffic. Note: <ul style="list-style-type: none"><li>● This parameter is only available for users on the whitelist.</li><li>● If elastic scaling is enabled, <b>l4_flavor_id</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>l7_flavor_id</b> indicates the maximum Layer-7 flavor for elastic scaling.</li></ul> This parameter is unsupported. Please do not use it.
public_border_group	String	Specifies the AZ group to which the load balancer belongs.
charge_mode	String	Specifies the billing mode. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>flavor</b>: billed by the specifications you will select</li><li>● <b>lcu</b>: billed by LCU usage</li></ul>
waf_failure_action	String	Specifies traffic distributing policies when the WAF is faulty. <ul style="list-style-type: none"><li>● <b>discard</b>: Traffic will not be distributed.</li><li>● <b>forward</b>: Traffic will be distributed to the default backend servers.</li></ul> Note: This parameter takes effect only when WAF is enabled for the load balancer. This parameter is unsupported. Please do not use it.

Parameter	Type	Description
log_group_id	String	Specifies the ID of the log group that is associated with the load balancer.
log_topic_id	String	Specifies the ID of the log topic that is associated with the load balancer.

**Table 5-54** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.

**Table 5-55** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-56** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-57** EipInfo

Parameter	Type	Description
eip_id	String	eip_id
eip_address	String	eip_address
ip_version	Integer	Specifies the IP version. <b>4</b> indicates IPv4, and <b>6</b> indicates IPv6.

**Table 5-58** PublicIpInfo

Parameter	Type	Description
publicip_id	String	Specifies the EIP ID.
publicip_address	String	Specifies the IP address.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> (IPv4) or <b>6</b> (IPv6).

**Table 5-59** GlobalEipInfo

Parameter	Type	Description
global_eip_id	String	Specifies the ID of the global EIP.
global_eip_address	String	Specifies the global EIP.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> and <b>6</b> . <b>4</b> indicates an IPv4 address, and <b>6</b> indicates an IPv6 address.

**Table 5-60** BandwidthRef

Parameter	Type	Description
id	String	Specifies the shared bandwidth ID.

**Table 5-61** AutoscalingRef

Parameter	Type	Description
enable	Boolean	Specifies whether to enable elastic scaling for the load balancer. <ul style="list-style-type: none"><li>• <b>true</b>: Enable elastic scaling.</li><li>• <b>false</b> (default): Disable elastic scaling.</li></ul>

Parameter	Type	Description
min_l7_flavor_id	String	Specifies the ID of the minimum Layer-7 flavor for elastic scaling. This parameter cannot be left blank if there are HTTP or HTTPS listeners.  This parameter has been discarded but still can be passed for compatibility reasons. If you specify this parameter, you will be charged for the minimum Layer-7 flavor  Minimum: <b>1</b> Maximum: <b>36</b>

## Example Requests

Querying details of a given load balancer

```
GET https://{ELB_Endpoint}/v3/060576782980d5762f9ec014dd2f1148/elb/loadbalancers/3dbde7e5-c277-4ea3-a424-edd339357eff
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "loadbalancer": {
    "id": "3dbde7e5-c277-4ea3-a424-edd339357eff",
    "project_id": "060576782980d5762f9ec014dd2f1148",
    "name": "elb-l4-no-delete",
    "description": null,
    "vip_port_id": "f079c7ee-65a9-44ef-be86-53d8927e59be",
    "vip_address": "10.0.0.196",
    "admin_state_up": true,
    "provisioning_status": "ACTIVE",
    "operating_status": "ONLINE",
    "listeners": [],
    "pools": [ {
      "id": "1d864dc9-f6ef-4366-b59d-7034cde2328f"
    }, {
      "id": "c0a2e4a1-c028-4a24-a62f-e721c52f5513"
    }, {
      "id": "79308896-6169-4c28-acbc-e139eb661996"
    } ],
    "tags": [],
    "provider": null,
    "created_at": "2019-12-02T09:55:11Z",
    "updated_at": "2019-12-02T09:55:11Z",
    "vpc_id": "70711260-9de9-4d96-9839-0ae698e00109",
    "enterprise_project_id": "0",
    "availability_zone_list": [],
    "ipv6_vip_address": null,
    "ipv6_vip_virusubnet_id": null,
    "ipv6_vip_port_id": null,
    "publicips": [],
    "elb_virusubnet_ids": [ "ad5d63bf-3b50-4e88-b4d9-e94a59aade48" ],
    "eips": [],
    "guaranteed": true,
    "billing_info": null,
    "l4_flavor_id": "e5acacda-f861-404e-9871-df480c49d185",
```

```
"l4_scale_flavor_id" : null,
"l7_flavor_id" : null,
"l7_scale_flavor_id" : null,
"vip_subnet_cidr_id" : "396d918a-756e-4163-8450-3bdc860109cf",
"deletion_protection_enable" : false,
"autoscaling" : {
  "enable" : true,
  "min_l7_flavor_id" : "0c8cf29d-51cb-4c1d-8e25-1c61cf5c2b00"
},
"public_border_group" : "center"
},
"request_id" : "1a47cfbf-969f-4e40-8c0e-c2e60b14bcac"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.4.4 Updating a Load Balancer

### Function

This API is used to update a load balancer.

### Calling Method

For details, see [Calling APIs](#).

### URI

PUT /v3/{project\_id}/elb/loadbalancers/{loadbalancer\_id}

**Table 5-62** Path Parameters

Parameter	Mandatory	Type	Description
loadbalancer_id	Yes	String	Specifies the load balancer ID. Minimum: <b>0</b> Maximum: <b>36</b>
project_id	Yes	String	Specifies the project ID. Minimum: <b>0</b> Maximum: <b>36</b>



## Request Parameters

**Table 5-63** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication. Minimum: <b>0</b> Maximum: <b>4096</b>

**Table 5-64** Request body parameters

Parameter	Mandatory	Type	Description
loadbalancer	Yes	<a href="#">UpdateLoadBalancerOption</a> object	Specifies the load balancer.

**Table 5-65** UpdateLoadBalancerOption

Parameter	Mandatory	Type	Description
name	No	String	Specifies the load balancer name. Minimum: <b>0</b> Maximum: <b>255</b>
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. The value can only be <b>true</b> .
description	No	String	Provides supplementary information about the load balancer. Minimum: <b>0</b> Maximum: <b>255</b>

Parameter	Mandatory	Type	Description
ipv6_vip_virsubnet_id	No	String	<p>Specifies the ID of the IPv6 subnet where the load balancer resides. You can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets).</p> <p>The IPv6 subnet can be updated using <b>ipv6_vip_virsubnet_id</b>, and the private IPv6 address of the load balancer will be changed accordingly.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter will be passed only when IPv6 is enabled for the subnet. The subnet specified by <b>ipv6_vip_virsubnet_id</b> must be in the VPC specified by <b>vpc_id</b>.</li> <li>• This parameter can be updated only when <b>guaranteed</b> is set to <b>true</b>.</li> <li>• The value will become <b>null</b> if the IPv6 address is unbound from the load balancer.</li> <li>• The IPv4 subnet will not change, if IPv6 subnet is updated.</li> </ul>

Parameter	Mandatory	Type	Description
vip_subnet_cidr_id	No	String	<p>Specifies the ID of the IPv4 subnet where the load balancer resides. You can query parameter <b>neutron_subnet_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets).</p> <ul style="list-style-type: none"> <li>• The IPv4 subnet can be updated using <b>vip_subnet_cidr_id</b>, and the private IPv4 address of the load balancer will be changed accordingly. Note:</li> <li>• If <b>vip_address</b> is also specified, the IP address specified by <b>vip_address</b> must be in the subnet specified by <b>vip_subnet_cidr_id</b> and will be used as the private IPv4 address of the load balancer.</li> <li>• The IPv4 subnet must be in the VPC where the load balancer resides.</li> <li>• This parameter can be updated only when <b>guaranteed</b> is set to <b>true</b>.</li> <li>• The value will become <b>null</b> if the private IPv4 address is unbound from the load balancer.</li> <li>• The IPv6 subnet will not change if IPv4 subnet is updated.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>

Parameter	Mandatory	Type	Description
vip_address	No	String	<p>Specifies the private IPv4 address bound to the load balancer. The IP address must be from the IPv4 subnet where the load balancer resides and should not be occupied by other services.</p> <p><b>vip_address</b> can be updated only when <b>guaranteed</b> is set to <b>true</b>.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>
l4_flavor_id	No	String	<p>Specifies the ID of a flavor at Layer 4.</p> <p>All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
l7_flavor_id	No	String	<p>Specifies the ID of a flavor at Layer 7.</p> <p>All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>
ipv6_bandwidth	No	<b>BandwidthRef</b> object	<p>Specifies the ID of the bandwidth used by an IPv6 address. This parameter is available only when you create or update a load balancer with a public IPv6 address. If you use a new IPv6 address and specify a shared bandwidth, the IPv6 address will be added to the shared bandwidth.</p>

Parameter	Mandatory	Type	Description
ip_target_enable	No	Boolean	<p>Specifies whether to enable IP as a backend. The value can be <b>true</b> (enable IP as a backend) or <b>false</b> (disable IP as a backend). This function cannot be disabled after it is enabled.</p> <p>If you enable this function, you can add servers in a VPC connected through a VPC peering connection, in a VPC connected through a cloud connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.</p> <p>If you enable this function for a dedicated load balancer deployed in a shared VPC, ensure that a VPC peering connection has been created.</p> <p>This function is available only for dedicated load balancers.</p>

Parameter	Mandatory	Type	Description
elb_virsubnet_ids	No	Array of strings	<p>Specifies the IDs of subnets on the downstream plane. You can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets).</p> <ul style="list-style-type: none"><li>• If the IDs of the subnets required by the load balancer are specified in <b>elb_virsubnet_ids</b>, the subnets will still be bound to the load balancer.</li><li>• If the IDs of the subnets are specified in <b>elb_virsubnet_ids</b>, but not on the downstream plane, a new load balancer will be bound to the downstream plane.</li><li>• If the IDs of the subnets required by the load balancer are not specified in <b>elb_virsubnet_ids</b>, the subnets will be unbound from the load balancers. Do not unbound the subnets that have been used by the load balancer. Otherwise, an error will be returned.</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• All subnets belong to the same VPC where the load balancer resides.</li><li>• Edge subnets are not supported.</li></ul> <p>Minimum: <b>1</b> Maximum: <b>64</b> Array Length: <b>0 - 64</b></p>

Parameter	Mandatory	Type	Description
deletion_protection_enable	No	Boolean	<p>Specifies whether to enable deletion protection for the load balancer.</p> <ul style="list-style-type: none"> <li>• <b>true</b>: Enable deletion protection.</li> <li>• <b>false</b> (default): Disable deletion protection.</li> </ul> <p><b>NOTE</b> Disable deletion protection for all your resources before deleting your account.</p>
autoscaling	No	<a href="#">UpdateLoadBalancerAutoscalingOption</a> object	<p>Specifies the information about elastic scaling. If elastic scaling is enabled, the load balancer specifications can be automatically adjusted based on incoming traffic.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter is only available for users on the whitelist.</li> <li>• If elastic scaling is enabled, <b>l4_flavor_id</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>l7_flavor_id</b> indicates the maximum Layer-7 flavor for elastic scaling.</li> </ul> <p>This parameter is unsupported. Please do not use it.</p>
ipv6_vip_address	No	String	Specifies the IPv6 address bound to the load balancer.

**Table 5-66** BandwidthRef

Parameter	Mandatory	Type	Description
id	Yes	String	Specifies the shared bandwidth ID.

**Table 5-67** UpdateLoadbalancerAutoscalingOption

Parameter	Mandatory	Type	Description
enable	Yes	Boolean	Specifies whether to enable elastic scaling the load balancer. The options are as follows: <ul style="list-style-type: none"><li>• <b>true</b>: Enable deletion protection.</li><li>• <b>false</b>: Disable deletion protection.</li></ul> Default: <b>false</b>
min_l7_flavor_id	No	String	Specifies the ID of the minimum Layer-7 flavor for elastic scaling. This parameter cannot be left blank if there are HTTP or HTTPS listeners. This parameter has been discarded but still can be passed for compatibility reasons. If you specify this parameter, you will be charged for the minimum Layer-7 flavor. Minimum: <b>1</b> Maximum: <b>36</b>

## Response Parameters

Status code: 200

**Table 5-68** Response body parameters

Parameter	Type	Description
loadbalancer	<b>LoadBalancer</b> object	Specifies the load balancer.
loadbalancer_id	String	Specifies the load balancer ID. This parameter is returned when the billing mode of the load balancer is yearly/monthly. This parameter is unsupported. Please do not use it. Minimum: <b>0</b> Maximum: <b>36</b>



Parameter	Type	Description
order_id	String	Specifies the order No. This parameter is returned when the billing mode of the load balancer is yearly/monthly. This parameter is unsupported. Please do not use it. Minimum: <b>0</b> Maximum: <b>36</b>
request_id	String	Specifies the request ID. The value is automatically generated. Minimum: <b>0</b> Maximum: <b>36</b>

**Table 5-69** LoadBalancer

Parameter	Type	Description
id	String	Specifies the load balancer ID.
description	String	Provides supplementary information about the load balancer. Minimum: <b>1</b> Maximum: <b>255</b>
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>ACTIVE</b>: The load balancer is successfully provisioned.</li> <li>• <b>PENDING_DELETE</b>: The load balancer is being deleted.</li> </ul>
admin_state_up	Boolean	Specifies the administrative status of the load balancer. The value can be <b>true</b> or <b>false</b> . <b>true</b> indicates the load balancer is enabled and <b>false</b> indicates the load balancer is disabled.
provider	String	Specifies the provider of the load balancer. The value can only be <b>vlb</b> .
pools	Array of <b>PoolRef</b> objects	Lists the IDs of backend server groups associated with the load balancer.
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners added to the load balancer.

Parameter	Type	Description
operating_status	String	Specifies the operating status of the load balancer. The value can only be <b>ONLINE</b> , indicating that the load balancer is running normally.
name	String	Specifies the load balancer name.
project_id	String	Specifies the project ID of the load balancer.
vip_subnet_cidr_id	String	Specifies the ID of the IPv4 subnet where the load balancer resides.
vip_address	String	Specifies the private IPv4 address bound to the load balancer.
vip_port_id	String	Specifies the ID of the port bound to the private IPv4 address of the load balancer.
tags	Array of <b>Tag</b> objects	Lists the tags added to the load balancer.
created_at	String	Specifies the time when the load balancer was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
updated_at	String	Specifies the time when the load balancer was updated, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> .
guaranteed	Boolean	Specifies whether the load balancer is a dedicated load balancer. <ul style="list-style-type: none"><li>• <b>true</b> (default): The load balancer is a dedicated load balancer.</li><li>• <b>false</b>: The load balancer is a shared load balancer.</li></ul>
vpc_id	String	Specifies the ID of the VPC where the load balancer resides.
eips	Array of <b>EipInfo</b> objects	Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer. This parameter has the same meaning as <b>publicips</b> .
ipv6_vip_address	String	Specifies the IPv6 address bound to the load balancer.
ipv6_vip_virtual_subnet_id	String	Specifies the ID of the IPv6 subnet where the load balancer resides.
ipv6_vip_port_id	String	Specifies the ID of the port bound to the IPv6 address of the load balancer.

Parameter	Type	Description
availability_zone_list	Array of strings	Specifies the list of AZs where the load balancer is created.
enterprise_project_id	String	Specifies the enterprise project ID. If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project. "0" is not a valid enterprise project ID and cannot be used in the APIs for creating, updating the load balancer, or querying details of the load balancer.
billing_info	String	Provides resource billing information. <ul style="list-style-type: none"> <li>If the value is left blank, the resource is billed in pay-per-use mode.</li> <li>If the value is not left blank, the resource is billed on a yearly/monthly basis. The value is in the format of <i>order_id:product_id:region_id:project_id</i>, for example, CS2107161019CDJZZ:OFFI569702121789763584:az1:057ef081eb00d2732fd1c01a9be75e6f. This parameter is unsupported. Please do not use it.</li> </ul> <p>Minimum: 1 Maximum: 1024</p>
l4_flavor_id	String	Specifies the ID of a flavor at Layer 4. If <b>autoscaling.enable</b> is set to <b>true</b> , this parameter indicates the ID of the maximum flavor. If <b>l4</b> is specified, you will be charged by the specifications you select. If <b>L4_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it. Minimum: 1 Maximum: 255
l4_scale_flavor_id	String	Specifies the ID of the reserved flavor at Layer 4. This parameter is unsupported. Please do not use it. Minimum: 1 Maximum: 255

Parameter	Type	Description
<code>l7_flavor_id</code>	String	<p>Specifies the ID of a flavor at Layer 7. If <b>autoscaling.enable</b> is set to <b>true</b>, this parameter indicates the ID of the maximum flavor.</p> <p>If <b>l7</b> is specified, you will be charged by the specifications you select.</p> <p>If <b>L7_elastic_max</b> is specified, you will be charged by how many LCUs you use. All load balancers share underlying resources. This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
<code>l7_scale_flavor_id</code>	String	<p>Specifies the ID of the reserved flavor at Layer 7.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
<code>publicips</code>	Array of <b>PublicIpInfo</b> objects	<p>Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer.</p> <p>This parameter has the same meaning as <b>eips</b>.</p>
<code>global_eips</code>	Array of <b>GlobalEipInfo</b> objects	<p>Specifies the global EIP bound to the load balancer. Only the first global EIP specified under <b>global_eips</b> will be bound.</p>
<code>elb_virsubnet_ids</code>	Array of strings	<p>Lists the IDs of subnets on the downstream plane.</p>
<code>elb_virsubnet_type</code>	String	<p>Specifies the type of the subnet on the downstream plane.</p> <ul style="list-style-type: none"><li>• <b>ipv4</b>: IPv4 subnet</li><li>• <b>dualstack</b>: subnet that supports IPv4/IPv6 dual stack</li></ul>

Parameter	Type	Description
ip_target_enable	Boolean	<p>Specifies whether to enable IP as a backend. The value can be <b>true</b> (enable IP as a backend) or <b>false</b> (disable IP as a backend). This function cannot be disabled after it is enabled.</p> <p>If you enable this function, you can add servers in a VPC connected through a VPC peering connection, in a VPC connected through a cloud connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.</p> <p>If you enable this function for a dedicated load balancer deployed in a shared VPC, ensure that a VPC peering connection has been created.</p> <p>This function is available only for dedicated load balancers.</p>
frozen_scene	String	<p>Specifies the scenario where the load balancer is frozen. Multiple values are separated using commas (,).</p> <p>This parameter is unsupported. Please do not use it.</p>
ipv6_bandwidth	<b>BandwidthRef</b> object	<p>Specifies the ID of the bandwidth used by an IPv6 address. This parameter is available only when you create or update a load balancer with a public IPv6 address. If you use a new IPv6 address and specify a shared bandwidth, the IPv6 address will be added to the shared bandwidth.</p>
deletion_protection_enable	Boolean	<p>Specifies whether to enable deletion protection for the load balancer.</p> <ul style="list-style-type: none"><li>● <b>true</b>: Enable deletion protection.</li><li>● <b>false</b> (default): Disable deletion protection.</li></ul> <p><b>NOTE</b> Disable deletion protection for all your resources before deleting your account.</p>

Parameter	Type	Description
autoscaling	<a href="#">AutoscalingRef</a> object	<p>Specifies information about elastic scaling. If elastic scaling is enabled, the load balancer specifications can be automatically adjusted based on incoming traffic.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter is only available for users on the whitelist.</li><li>• If elastic scaling is enabled, <b>l4_flavor_id</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>l7_flavor_id</b> indicates the maximum Layer-7 flavor for elastic scaling.</li></ul> <p>This parameter is unsupported. Please do not use it.</p>
public_border_group	String	Specifies the AZ group to which the load balancer belongs.
charge_mode	String	<p>Specifies the billing mode. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>flavor</b>: billed by the specifications you will select</li><li>• <b>lcu</b>: billed by LCU usage</li></ul>
waf_failure_action	String	<p>Specifies traffic distributing policies when the WAF is faulty.</p> <ul style="list-style-type: none"><li>• <b>discard</b>: Traffic will not be distributed.</li><li>• <b>forward</b>: Traffic will be distributed to the default backend servers.</li></ul> <p>Note: This parameter takes effect only when WAF is enabled for the load balancer.</p> <p>This parameter is unsupported. Please do not use it.</p>
log_group_id	String	Specifies the ID of the log group that is associated with the load balancer.
log_topic_id	String	Specifies the ID of the log topic that is associated with the load balancer.

**Table 5-70** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.

**Table 5-71** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-72** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-73** EipInfo

Parameter	Type	Description
eip_id	String	eip_id
eip_address	String	eip_address
ip_version	Integer	Specifies the IP version. <b>4</b> indicates IPv4, and <b>6</b> indicates IPv6.

**Table 5-74** PublicIpInfo

Parameter	Type	Description
publicip_id	String	Specifies the EIP ID.
publicip_address	String	Specifies the IP address.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> (IPv4) or <b>6</b> (IPv6).

**Table 5-75** GlobalEipInfo

Parameter	Type	Description
global_eip_id	String	Specifies the ID of the global EIP.

Parameter	Type	Description
global_eip_address	String	Specifies the global EIP.
ip_version	Integer	Specifies the IP version. The value can be <b>4</b> and <b>6</b> . <b>4</b> indicates an IPv4 address, and <b>6</b> indicates an IPv6 address.

**Table 5-76** BandwidthRef

Parameter	Type	Description
id	String	Specifies the shared bandwidth ID.

**Table 5-77** AutoscalingRef

Parameter	Type	Description
enable	Boolean	Specifies whether to enable elastic scaling for the load balancer. <ul style="list-style-type: none"><li>• <b>true</b>: Enable elastic scaling.</li><li>• <b>false</b> (default): Disable elastic scaling.</li></ul>
min_l7_flavor_id	String	Specifies the ID of the minimum Layer-7 flavor for elastic scaling. This parameter cannot be left blank if there are HTTP or HTTPS listeners. This parameter has been discarded but still can be passed for compatibility reasons. If you specify this parameter, you will be charged for the minimum Layer-7 flavor Minimum: <b>1</b> Maximum: <b>36</b>

## Example Requests

Modifying the description and name of a load balancer

```
PUT https://{ELB_Endpoint}/v3/{project_id}/elb/loadbalancers/{loadbalancer_id}
```

```
{
  "loadbalancer": {
    "description": "loadbalancer",
    "name": "loadbalancer-update"
  }
}
```

## Example Responses

**Status code: 200**



Successful request.

```
{
  "request_id": "010dad1e-32a3-4405-ab83-62a1fc5f8722",
  "loadbalancer": {
    "id": "2e073bf8-edfe-4e51-a699-d915b0b8af89",
    "project_id": "b2782e6708b8475c993e6064bc456bf8",
    "name": "loadbalancer-update",
    "description": "loadbalancer",
    "vip_port_id": null,
    "vip_address": null,
    "admin_state_up": true,
    "provisioning_status": "ACTIVE",
    "operating_status": "ONLINE",
    "listeners": [ {
      "id": "41937176-bf64-4b58-8e0d-9ff2d0d32c54"
    }, {
      "id": "abc6ac93-ad0e-4765-bd5a-eec632efde56"
    }, {
      "id": "b9d8ba97-6d60-467d-838d-f3550b54c22a"
    }, {
      "id": "fd797ebd-263d-4b18-96e9-e9188d36c69e"
    } ],
    "pools": [ {
      "id": "0aabcaa8-c35c-4ddc-a60c-9032d0ac0b80"
    }, {
      "id": "165d9092-396e-4a8d-b398-067496a447d2"
    } ],
    "tags": [ ],
    "provider": "vlb",
    "created_at": "2019-04-20T03:10:37Z",
    "updated_at": "2019-05-24T02:11:58Z",
    "vpc_id": "2037c5bb-e04b-4de2-9300-9051af18e417",
    "enterprise_project_id": "0",
    "availability_zone_list": [ "AZ1", "AZ2", "dc3" ],
    "ipv6_vip_address": null,
    "ipv6_vip_virusubnet_id": null,
    "ipv6_vip_port_id": null,
    "eips": [ ],
    "guaranteed": true,
    "billing_info": null,
    "l4_flavor_id": null,
    "l4_scale_flavor_id": null,
    "l7_flavor_id": null,
    "l7_scale_flavor_id": null,
    "vip_subnet_cidr_id": null,
    "deletion_protection_enable": false,
    "public_border_group": "center"
  }
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.4.5 Deleting a Load Balancer

### Function

This API is used to delete a load balancer.

### Constraints

All listeners added to the load balancer must be deleted before the load balancer is deleted.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/loadbalancers/{loadbalancer\_id}

**Table 5-78** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	Yes	String	Specifies the load balancer ID.

### Request Parameters

**Table 5-79** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

None

### Example Requests

Deleting a load balancer

```
DELETE https://{ELB_Endpoint}/v3/060576782980d5762f9ec014dd2f1148/elb/loadbalancers/  
32c1057f-74a1-42d6-9b20-d55b80ab89c4
```

## Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

## 5.4.6 Querying the Status Tree of a Load Balancer

### Function

This API is used to query the status tree of a load balancer and to show information about all resources associated with the load balancer.

When **admin\_state\_up** is set to **false** and **operating\_status** to **OFFLINE** for a backend server, **DISABLED** is returned for **operating\_status** of the backend server in the response of this API.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/loadbalancers/{loadbalancer\_id}/statuses

**Table 5-80** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	Yes	String	Specifies the load balancer ID.

## Request Parameters

**Table 5-81** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-82** Response body parameters

Parameter	Type	Description
statuses	<a href="#">LoadBalancerStatusResult</a> object	Provides information about the load balancer status tree.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-83** LoadBalancerStatusResult

Parameter	Type	Description
loadbalancer	<a href="#">LoadBalancerStatus</a> object	Specifies the statuses of the load balancer and its associated resources.

**Table 5-84** LoadBalancerStatus

Parameter	Type	Description
name	String	Specifies the load balancer name. Minimum: <b>1</b> Maximum: <b>255</b>
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be <b>ACTIVE</b> or <b>PENDING_DELETE</b> . <ul style="list-style-type: none"><li>• <b>ACTIVE</b>: The load balancer is successfully provisioned.</li><li>• <b>PENDING_DELETE</b>: The load balancer is being deleted.</li></ul>

Parameter	Type	Description
listeners	Array of <a href="#">LoadBalancerStatusListener</a> objects	Lists the listeners added to the load balancer.
pools	Array of <a href="#">LoadBalancerStatusPool</a> objects	Lists the backend server groups associated with the load balancer.
id	String	Specifies the load balancer ID.
operating_status	String	<p>Specifies the operating status of the load balancer.</p> <p>The value can only be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>ONLINE</b> (default): The load balancer is running normally.</li> <li>● <b>FROZEN</b>: The load balancer has been frozen.</li> <li>● <b>DEGRADED</b>: This status is displayed only when <b>operating_status</b> is set to <b>OFFLINE</b> for a backend server associated with the load balancer and the API for querying the load balancer status tree is called.</li> <li>● <b>DISABLED</b>: This status is displayed only when <b>admin_state_up</b> of the load balancer is set to <b>false</b>.</li> </ul> <p><b>DEGRADED</b> and <b>DISABLED</b> are returned only when the API for querying the load balancer status tree is called.</p>

**Table 5-85** LoadBalancerStatusListener

Parameter	Type	Description
name	String	<p>Specifies the name of the listener added to the load balancer.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>255</b></p>
provisioning_status	String	Specifies the provisioning status of the listener. The value can only be <b>ACTIVE</b> , indicating that the listener is successfully provisioned.
pools	Array of <a href="#">LoadBalancerStatusPool</a> objects	Specifies the operating status of the backend server group associated with the listener.

Parameter	Type	Description
l7policies	Array of <a href="#">LoadBalancerStatusPolicy</a> objects	Specifies the operating status of the forwarding policy added to the listener.
id	String	Specifies the listener ID.
operating_status	String	Specifies the operating status of the listener. The value can only be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b> (default): The listener is running normally.</li><li>● <b>DEGRADED</b>: This status is displayed only when <b>provisioning_status</b> of a forwarding policy or a forwarding rule added to the listener is set to <b>ERROR</b> or <b>operating_status</b> is set to <b>OFFLINE</b> for a backend server associated with the listener.</li><li>● <b>DISABLED</b>: This status is displayed only when <b>admin_state_up</b> of the load balancer or of the listener is set to <b>false</b>. Note: <b>DEGRADED</b> and <b>DISABLED</b> are returned only when the API for querying the load balancer status tree is called.</li></ul>

**Table 5-86** LoadBalancerStatusPolicy

Parameter	Type	Description
action	String	Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>REDIRECT_TO_POOL</b>: Requests are forwarded to another backend server group.</li><li>● <b>REDIRECT_TO_LISTENER</b>: Requests are redirected to an HTTPS listener.</li></ul>
id	String	Specifies the forwarding policy ID.
provisioning_status	String	Specifies the provisioning status of the forwarding policy. <ul style="list-style-type: none"><li>● <b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li><li>● <b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li></ul>

Parameter	Type	Description
name	String	Specifies the policy name. Minimum: <b>1</b> Maximum: <b>255</b>
rules	Array of <b>LoadBalancerStatusL7Rule</b> objects	Specifies the forwarding rule.

**Table 5-87** LoadBalancerStatusL7Rule

Parameter	Type	Description
id	String	Specifies the ID of the forwarding rule.
type	String	Specifies the type of the match content. The value can be <b>HOST_NAME</b> or <b>PATH</b> . <ul style="list-style-type: none"><li>• <b>HOST_NAME</b>: A domain name will be used for matching.</li><li>• <b>PATH</b>: A URL will be used for matching.</li></ul> The value must be unique for each forwarding rule in a forwarding policy.
provisioning_status	String	Specifies the provisioning status of the forwarding rule. <ul style="list-style-type: none"><li>• <b>ACTIVE</b> (default): The forwarding rule is successfully provisioned.</li><li>• <b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li></ul>

**Table 5-88** LoadBalancerStatusPool

Parameter	Type	Description
provisioning_status	String	Specifies the provisioning status of the backend server group. The value can only be <b>ACTIVE</b> , indicating that the backend server group is successfully provisioned.
name	String	Specifies the name of the backend server group. Minimum: <b>1</b> Maximum: <b>255</b>

Parameter	Type	Description
healthmonitor	<a href="#">LoadBalancerStatusHealthMonitor</a> object	Specifies the health check results of backend servers in the load balancer status tree.
members	Array of <a href="#">LoadBalancerStatusMember</a> objects	Specifies the backend server.
id	String	Specifies the ID of the backend server group.
operating_status	String	Specifies the operating status of the backend server group. The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>ONLINE</b>: The backend server group is running normally.</li> <li>● <b>DEGRADED</b>: This status is displayed only when <b>operating_status</b> of a backend server in the backend server group is set to <b>OFFLINE</b>.</li> <li>● <b>DISABLED</b>: This status is displayed only when <b>admin_state_up</b> of the backend server group or of the associated load balancer is set to <b>false</b>.</li> </ul> Note: <b>DEGRADED</b> and <b>DISABLED</b> are returned only when the API for querying the load balancer status tree is called.

**Table 5-89** LoadBalancerStatusHealthMonitor

Parameter	Type	Description
type	String	Specifies the health check protocol. The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .
id	String	Specifies the health check ID.
name	String	Specifies the health check name. Minimum: <b>1</b> Maximum: <b>255</b>
provisioning_status	String	Specifies the provisioning status of the health check. The value can only be <b>ACTIVE</b> , indicating that the health check is successfully provisioned.



**Table 5-90** LoadBalancerStatusMember

Parameter	Type	Description
provisioning_status	String	Specifies the provisioning status of the backend server. The value can only be <b>ACTIVE</b> , indicating that the backend server is successfully provisioned.
address	String	Specifies the private IP address bound to the backend server.
protocol_port	Integer	Specifies the port used by the backend server to receive requests. The port number ranges from 1 to 65535.
id	String	Specifies the backend server ID.
operating_status	String	Specifies the operating status of the backend server. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The backend server is running normally.</li><li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li><li>● <b>DISABLED</b>: The backend server is not available. This status is displayed only when <b>admin_state_up</b> of the backend server, or the backend server group to which it belongs, or the associated load balancer is set to <b>false</b> and the API for querying the load balancer status tree is called.</li><li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul>

## Example Requests

Querying the status tree of a load balancer

```
GET https://{ELB_Endpoint}/v3/{project_id}/elb/loadbalancers/38278031-cfca-44be-81be-a412f618773b/statuses
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "statuses": {
    "loadbalancer": {
      "name": "lb-xy",
      "provisioning_status": "ACTIVE",
```

```
"listeners" : [ {
  "name" : "listener-jy-1",
  "provisioning_status" : "ACTIVE",
  "pools" : [ {
    "name" : "pool-jy-1",
    "provisioning_status" : "ACTIVE",
    "healthmonitor" : {
      "type" : "TCP",
      "id" : "7422b51a-0ed2-4702-9429-4f88349276c6",
      "name" : "",
      "provisioning_status" : "ACTIVE"
    },
    "members" : [ {
      "protocol_port" : 80,
      "address" : "192.168.44.11",
      "id" : "7bbf7151-0dce-4087-b316-06c7fa17b894",
      "operating_status" : "ONLINE",
      "provisioning_status" : "ACTIVE"
    } ],
    "id" : "c54b3286-2349-4c5c-ade1-e6bb0b26ad18",
    "operating_status" : "ONLINE"
  } ],
  "l7policies" : [ ],
  "id" : "eb84c5b4-9bc5-4bee-939d-3900fb05dc7b",
  "operating_status" : "ONLINE"
} ],
"pools" : [ {
  "name" : "pool-jy-1",
  "provisioning_status" : "ACTIVE",
  "healthmonitor" : {
    "type" : "TCP",
    "id" : "7422b51a-0ed2-4702-9429-4f88349276c6",
    "name" : "",
    "provisioning_status" : "ACTIVE"
  },
  "members" : [ {
    "protocol_port" : 80,
    "address" : "192.168.44.11",
    "id" : "7bbf7151-0dce-4087-b316-06c7fa17b894",
    "operating_status" : "ONLINE",
    "provisioning_status" : "ACTIVE"
  } ],
  "id" : "c54b3286-2349-4c5c-ade1-e6bb0b26ad18",
  "operating_status" : "ONLINE"
} ],
"id" : "38278031-cfca-44be-81be-a412f618773b",
"operating_status" : "ONLINE"
}
}
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.5 Certificate

### 5.5.1 Creating a Certificate

#### Function

This API is used to create an SSL certificate for HTTPS listeners.

#### Calling Method

For details, see [Calling APIs](#).

#### URI

POST /v3/{project\_id}/elb/certificates

**Table 5-91** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

#### Request Parameters

**Table 5-92** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-93** Request body parameters

Parameter	Mandatory	Type	Description
certificate	Yes	<a href="#">CreateCertificateOption</a> object	Specifies the certificate.

**Table 5-94** CreateCertificateOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the certificate. This parameter is unsupported. Please do not use it.
certificate	No	String	Specifies the body of the certificate required by HTTPS listeners. The value must be PEM encoded. Maximum 65,536 character length is allowed, supports certificate chains with a maximum of 11 layers (including certificates and certificate chains).
description	No	String	Provides supplementary information about the certificate. Minimum: <b>0</b> Maximum: <b>255</b>

Parameter	Mandatory	Type	Description
domain	No	String	<p>Specifies the domain names used by the server certificate. This parameter will take effect only when <b>type</b> is set to <b>server</b>.</p> <ul style="list-style-type: none"><li>• The value can contain 0 to 10,000 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 100 domain names are allowed.</li><li>• A common domain name consists of several labels separated by periods (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit. Example: www.test.com</li><li>• A wildcard domain name is a domain name starts with an asterisk (*). Example: *.test.com</li></ul> <p>Minimum: <b>0</b> Maximum: <b>10000</b></p>
name	No	String	<p>Specifies the certificate name.</p> <p>Minimum: <b>0</b> Maximum: <b>255</b></p>
private_key	No	String	<p>Specifies the private key of the certificate used by HTTPS listeners. The value can contain up to 8,192 PEM encoded characters.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>.</li><li>• This parameter will be ignored even if <b>type</b> is set to <b>client</b>. The value must be PEM encoded and will not take effect.</li></ul>

Parameter	Mandatory	Type	Description
project_id	No	String	<ul style="list-style-type: none"><li>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>.</li></ul> Minimum: <b>1</b> Maximum: <b>32</b>
type	No	String	Specifies the certificate type. The value can be <b>server</b> or <b>client</b> . <b>server</b> indicates server certificates, and <b>client</b> indicates CA certificates. The default value is <b>server</b> .
enterprise_project_id	No	String	Specifies the ID of the enterprise project that the certificate belongs to.

## Response Parameters

Status code: 201

Table 5-95 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
certificate	<a href="#">CertificateInfo</a> object	Specifies the certificate.

Table 5-96 CertificateInfo

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the certificate. This parameter is unsupported. Please do not use it.
certificate	String	Specifies the certificate content. The value must be PEM encoded.
description	String	Provides supplementary information about the certificate. Minimum: <b>1</b> Maximum: <b>255</b>

Parameter	Type	Description
domain	String	<p>Specifies the domain names used by the server certificate. This parameter will take effect only when <b>type</b> is set to <b>server</b>.</p> <ul style="list-style-type: none"><li>The value can contain 0 to 10,000 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 100 domain names are allowed.</li><li>A common domain name consists of several labels separated by periods (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit. Example: www.test.com</li><li>A wildcard domain name is a domain name starts with an asterisk (*). Example: *.test.com</li></ul> <p>Minimum: <b>1</b> Maximum: <b>10000</b></p>
id	String	Specifies the certificate ID.
name	String	<p>Specifies the certificate name.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
private_key	String	<p>Specifies the private key of the server certificate. The value must be PEM encoded.</p> <ul style="list-style-type: none"><li>This parameter will be ignored even if <b>type</b> is set to <b>client</b>. A CA certificate can still be created and used normally.</li><li>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>. If you enter an invalid private key, an error is returned.</li></ul>
type	String	<p>Specifies the certificate type. The value can be <b>server</b> or <b>client</b>. <b>server</b> indicates server certificates, and <b>client</b> indicates CA certificates. The default value is <b>server</b>.</p>
created_at	String	Specifies the time when the certificate was created.
updated_at	String	Specifies the time when the certificate was updated.
expire_time	String	Specifies the time when the certificate expires.
project_id	String	Specifies the project ID of the certificate.

## Example Requests

### Creating a server certificate

```
POST https://{elb_endponit}/v3/{project_id}/elb/certificates

{
  "certificate": {
    "name": "My Certificate",
    "type": "server",
    "private_key": "-----BEGIN PRIVATE KEY-----
\nMIIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAgEAAoIBAQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcJ8KcN1nfzTvl2ksXLTQ2o9BkpStnPe\ntB4s32ZiRMLk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30glh6QoP3cq7PGWcuZKv7hjd1tjCTQukwMvqV8lCq39bunPlgDOWzEP5AqzXt
\nCOFYn6RTH5SRug4hKNN7sT1eYmslHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl\nZAPYUBkl/
OXuTWRg3CohPPcl+UtlRSfvlDeeQ460swjbgwS/RbJh3slwLCRLU08k\nEo04Z9H/
AgMBAAEcggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\nfvfCARftGgMaYWPNSCJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHfGzjv5OQB
\nZVe4a5Hj1OcgJYhwCqP52d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr\nnciu9YkInNEHu6uRJ5g/
eGX3KQynTvIhnOVGAJvjXcoU6fm7gYdHAD6jk9lc9M\nEGPfYI6AdHlwFZcT/
RNAXhP82lg2gUJSGAu66FFdJmWQXKbafKdP3zq4Up8a7Ale\nkrquPtFv1vWklg
+bUfhGaiAEYTPAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqqCZO8MKeV2jf2drlxRRwRl33SksQbzAQ/qRLd77GP3sCGqvKxWY2FPdFy8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVWR8UtGBuQoPspH7JNF3Tm/JH/fbwjP7dt
\nJ7n8EzkRUNE6aiMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9vt7mTgKYK4aLr
\niWgTWHXPZxUQaYhpjXo6+lMI6DpExiDgBAKMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VzoLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBU\nxs40yldp6wKBgQC69Cp/
xUwTX7GdxQzElctYiKnBHKcspAg38zJf3bGSXU/jR4eB\n11VQhELGI9CbKSdzKM71GyElmix/
T7FnSHIWHo1qVo6AQyduNWnAQD15pr8KAd\nXGXAZZ1Fqcb3KYa
+2fflERmzOTWjYZ0tGqZnXkEeMdSLkmlqCRigWhGQKBgDak\n/735uP20KKqhNehZpC2dJei7OilgRhCs/
dKASUXHSW4fptBnUxACYodDxtY4Vha\nfl7FPMdVGl8ioYbvlHFH
+X0Xs9r1S8yeWnHoXmB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLaOGBAJkD4wHW54Pwd4Ctfk9o
\nHjWb7pQlUYpTZO9dm+4fpcMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9lIuk
\nfaoXgJKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUlGKMWXZuEd\n3fy
+1rCUwzOp9LSjtYf4ege\n-----END PRIVATE KEY-----",
    "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
\nb21wYW55IENBMB4XDTE4MDcwMjEzMTU0N1oXDTE4MTExNzEzMTU0N1owFDESMBAG
\nA1UEAwJbG9jYXxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAnoFQZi3ucTX
+DNud1p/
b4XVM6I3rY7+Cfge5GMLDIUXIHXCfGpp19Z3807yNpLF5\nU0NqPQZKUrZz3rQeLN9mYiUTJPutYIFDDbB8CtL
gV+eyU9yYjSlWx/Bm5kWNPh9\n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSlE4Y3dbYwk0LpMDL6lfCHKt/
W7JaS\nlAzlsxD+QM6l7QjhwJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\nny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPLZUUN7ywn3nkOOTLMI28IEv0Wy
\nYd7CMJQKs1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t\nnhwKQUUvJhwR/
AAABMBMGA1UdJQQMMAoGCCsGAQUFBwMBMA0GCSqGSIb3DQEBCwUA
\nA4IBAQA8lMQJxaTey7EjXtRLSVIEAMftAQPG6jjNQuvIBQYUDauDT4W2XUZ5wAn
\njiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKlOdl9I5I98TGKI6OoDa
\nnezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRlylp1HMnl6hkjPk4PCZ
\nwKnaH0dlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml\n
+vbmunok3A2luc14rnsrbcKGYqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN+9QBd0eYUHce
+77s96i3l\n-----END CERTIFICATE-----"
  }
}
```

## Example Responses

### Status code: 201

Normal response to POST requests.

```
{
  "certificate": {
    "private_key": "-----BEGIN PRIVATE KEY-----
MIIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAgEAAoIBAQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J
+B7kYwsMhRcgdcJ8KcN1nfzTvl2ksXLTQ2o9BkpStnPetB4s32ZiRMLk
```



```
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCT
QukwMvqV8lcq39buNplgDOWzEP5AqzXtCOFYn6RTH55Rug4hKNN7sT1eYMsIHu7wtEBDKVgrLjOCe/
W2f8rLT1zEsoAW2ChLZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjwbwgs/RbJh3slwCLRLU08kEo04Z9H/
AgMBAECGgEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD605XY2fUieh8/
HlfvCArftGgMaYWPSNCJRMXB7tPwpQu19esjz4Z/
cR2Je4fTLPrffGUshFgZjv5OQBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNK
Krciu9YklInNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9MEGpFYl6AdHlwFZcT/
RNAxhP82lg2gUJSgAu66FFDjMwQXKbafKdP3zq4Up8a7AlekrGuPtfV1vWklg
+bUfHgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CTXUqgCZo8MKeV2jf2drlxRRwRL33SksQbzAQ/
qrLdT7GP3sCGqvkxWY2FPdFYf8kxGcCeZPcleZYQAM41pjtsaM8tVbLWVR8UtGbuQoPSph7JNF3Tm/JH/
fbwjP7dtJ7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLriWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7y
QiYwU
+wthAr9urbWydGZIS6VjoTkF6r7VZoiLXX0fBuXh6lm8K8lQRfBpJff56p9pMwaBpDNDrfpHB5utBUxs40yldp6w
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB1lVQhELGI9CbKsDzKM71GyElmix/
T7FnSHIWlho1qVo6AQyduNWNwAQD15pr8KAdXGXAZZ1FQcb3KYa
+2fflERmazdOTWjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak/735uP20KKqhNehZpC2dJei7OilRhCs/
dKASUXHSW4fptBnUxACYodDxtY4Vhaf17FPMdvG8ioYbvLHFH+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqLLaOGBAJkD4wHW54Pwd4Ctfk9ojHjWB7pQUYpT
ZO9dm
+4fpCMn9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9lIukfaoXgJKR7p1zERiWzUfF63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BULGKMWXzuEd3fy+1rCUwzOp9LSjYf4ege-----END PRIVATE KEY-----",
  "description" : "",
  "domain" : null,
  "created_at" : "2019-03-31T22:23:51Z",
  "expire_time" : "2045-11-17T13:25:47Z",
  "id" : "233a325e5e3e4ce8beeb320aa714cc12",
  "name" : "My Certificate",
  "certificate" : "-----BEGIN CERTIFICATE-----
MIIC4TCCAcmgAwIBAgICEREwDQYJKoZIhvcNAQELBQAwFzEVMBMGGA1UEAxMMTXIDb21wYW55IENBMB4X
DTE4MDcwMjEzMDU0N1oXDTE4MTExNzEzMDU0N1owFDESMBAGA1UEAwwJbG9jYXVob3N0M0IIBIjANBgkqh
kiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAFQZi3ucTX+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUHXcfcGp19Z3807yNpLF5U0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDbB8CtIgv
+eyU9yYJslWx/Bm5kWNPh97B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSlE4Y3dbYwk0LpMDL6fCHKt/
W7jaSIazlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/
Ky09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPILZUUn7yw3nkOOtLMI28IEv0WyYd7CMJQks1NPJBKNOGfr/
wlDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/
AAABMBMGGA1UdJQQMMAoGCCsGAQUFBwMBMA0GCsSQSib3DQEBcWUAA4IBAQA8IMQJxaTey7EjXtRSLVl
EAMftAQPG6jjjNQuvlBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xLH
+xxwvdSNnozaKzC87vwSeZKIOdl9i5I98TGKI6OoDaezmzCwQytHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPR
LYlzp1HMnl6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml
+vbmunok3A2luc14rnsrbcGyqxGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZiYsGDVN+9QBd0eYUHce
+77s96i3l-----END CERTIFICATE-----",
  "admin_state_up" : true,
  "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
  "updated_at" : "2019-03-31T23:26:49Z",
  "type" : "server"
},
  "request_id" : "98414965-856c-4be3-8a33-3e08432a222e"
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.5.2 Querying Certificates

### Function

This API is used to query all SSL certificates.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/certificates

**Table 5-97** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-98** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If this parameter is not specified, the first page will be queried.</li><li>• This parameter cannot be left blank or set to an invalid ID.</li></ul>
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>

Parameter	Mandatory	Type	Description
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>
id	No	Array	Specifies a certificate ID. Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .
name	No	Array	Specifies the certificate name. Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .
description	No	Array	Provides supplementary information about the certificate. Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xxx</i> .
admin_state_up	No	Boolean	Specifies the administrative status of the certificate. This parameter is unsupported. Please do not use it.
domain	No	Array	Specifies the domain names used by the server certificate. This parameter is available only when <b>type</b> is set to <b>server</b> . Multiple domain names can be queried in the format of <i>domain=xxx&amp;domain=xxx</i> .

Parameter	Mandatory	Type	Description
type	No	Array	Specifies the certificate type. The value can be <b>server</b> or <b>client</b> . <b>server</b> indicates server certificates, and <b>client</b> indicates CA certificates. Multiple types can be queried in the format of <i>type=xxx&amp;type=xxx</i> .

## Request Parameters

Table 5-99 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

Table 5-100 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<a href="#">PageInfo</a> object	Shows pagination information about certificates.
certificates	Array of <a href="#">CertificateInfo</a> objects	Lists the certificates.

Table 5-101 PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.

Parameter	Type	Description
current_count	Integer	Specifies the number of records.

**Table 5-102** CertificateInfo

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the certificate. This parameter is unsupported. Please do not use it.
certificate	String	Specifies the certificate content. The value must be PEM encoded.
description	String	Provides supplementary information about the certificate. Minimum: <b>1</b> Maximum: <b>255</b>
domain	String	Specifies the domain names used by the server certificate. This parameter will take effect only when <b>type</b> is set to <b>server</b> . <ul style="list-style-type: none"><li>The value can contain 0 to 10,000 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 100 domain names are allowed.</li><li>A common domain name consists of several labels separated by periods (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit. Example: www.test.com</li><li>A wildcard domain name is a domain name starts with an asterisk (*). Example: *.test.com</li></ul> Minimum: <b>1</b> Maximum: <b>10000</b>
id	String	Specifies the certificate ID.
name	String	Specifies the certificate name. Minimum: <b>1</b> Maximum: <b>255</b>

Parameter	Type	Description
private_key	String	Specifies the private key of the server certificate. The value must be PEM encoded. <ul style="list-style-type: none"> <li>This parameter will be ignored even if <b>type</b> is set to <b>client</b>. A CA certificate can still be created and used normally.</li> <li>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>. If you enter an invalid private key, an error is returned.</li> </ul>
type	String	Specifies the certificate type. The value can be <b>server</b> or <b>client</b> . <b>server</b> indicates server certificates, and <b>client</b> indicates CA certificates. The default value is <b>server</b> .
created_at	String	Specifies the time when the certificate was created.
updated_at	String	Specifies the time when the certificate was updated.
expire_time	String	Specifies the time when the certificate expires.
project_id	String	Specifies the project ID of the certificate.

## Example Requests

Querying certificates

```
GET https://{ELB_Endpoint}/v3/{project_id}/elb/certificates
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "certificates" : [ {
    "id" : "5494a835d88f40ff940554992f2f04d4",
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "name" : "https_certificatekkkk",
    "type" : "server",
    "domain" : null,
    "description" : "description for certificatehhhh",
    "private_key" : "-----BEGIN PRIVATE KEY-----
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```

```
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MIIC4TCCAcmgAwIBAgIcERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMmMTXlD2b1wYW55IENBMB4X  
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  "created_at" : "2019-04-21T18:59:43Z",  
  "updated_at" : "2019-04-21T18:59:43Z",  
  "expire_time" : "2045-11-17T13:25:47Z"  
}, {  
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  "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",  
  "name" : "https_certificatekkkk",  
  "type" : "client",  
  "domain" : "sda.com",  
  "description" : "description for certificatehhhh",  
  "private_key" : "-----BEGIN PRIVATE KEY-----  
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  "updated_at" : "2019-04-06T21:33:24Z",  
  "expire_time" : "2045-11-17T13:25:47Z"  
}, {  
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  "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",  
  "name" : "asdf",  
  "type" : "server",  
  "domain" : "sda.com",  
  "description" : "",  
  "private_key" : "-----BEGIN PRIVATE KEY-----  
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8a5gZaOm/BUIGKMWXzuEd3fy+1rCUwzOp9LSjtYf4ege-----END PRIVATE KEY-----",  
  "certificate" : "-----BEGIN CERTIFICATE-----  
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+vbmunok3A2luc14rnsrbcgYqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZiYsGDVN+9QBd0eYUHce  
+77s96i3l-----END CERTIFICATE-----",  
  "admin_state_up" : true,  
  "created_at" : "2019-03-31T22:23:51Z",  
  "updated_at" : "2019-03-31T23:26:49Z",  
  "expire_time" : "2045-11-17T13:25:47Z"  
}],  
  "page_info" : {  
    "previous_marker" : "5494a835d88f40ff940554992f2f04d4",  
    "current_count" : 3
```



```
},  
"request_id" : "a27e7ae6-d901-4ec2-8e66-b8a1413819ad"  
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.5.3 Viewing Details of a Certificate

### Function

This API is used to view details of an SSL certificate.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/certificates/{certificate\_id}

**Table 5-103** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
certificate_id	Yes	String	Specifies a certificate ID.

### Request Parameters

**Table 5-104** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

**Status code: 200**

**Table 5-105** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
certificate	<a href="#">CertificateInfo</a> object	Specifies the certificate.

**Table 5-106** CertificateInfo

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the certificate. This parameter is unsupported. Please do not use it.
certificate	String	Specifies the certificate content. The value must be PEM encoded.
description	String	Provides supplementary information about the certificate. Minimum: <b>1</b> Maximum: <b>255</b>
domain	String	Specifies the domain names used by the server certificate. This parameter will take effect only when <b>type</b> is set to <b>server</b> . <ul style="list-style-type: none"><li>• The value can contain 0 to 10,000 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 100 domain names are allowed.</li><li>• A common domain name consists of several labels separated by periods (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit. Example: www.test.com</li><li>• A wildcard domain name is a domain name starts with an asterisk (*). Example: *.test.com</li></ul> Minimum: <b>1</b> Maximum: <b>10000</b>
id	String	Specifies the certificate ID.

Parameter	Type	Description
name	String	Specifies the certificate name. Minimum: <b>1</b> Maximum: <b>255</b>
private_key	String	Specifies the private key of the server certificate. The value must be PEM encoded. <ul style="list-style-type: none"> <li>This parameter will be ignored even if <b>type</b> is set to <b>client</b>. A CA certificate can still be created and used normally.</li> <li>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>. If you enter an invalid private key, an error is returned.</li> </ul>
type	String	Specifies the certificate type. The value can be <b>server</b> or <b>client</b> . <b>server</b> indicates server certificates, and <b>client</b> indicates CA certificates. The default value is <b>server</b> .
created_at	String	Specifies the time when the certificate was created.
updated_at	String	Specifies the time when the certificate was updated.
expire_time	String	Specifies the time when the certificate expires.
project_id	String	Specifies the project ID of the certificate.

## Example Requests

Viewing details of a certificate

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/certificates/5494a835d88f40ff940554992f2f04d4
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "certificate": {
    "id": "5494a835d88f40ff940554992f2f04d4",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "name": "https_certificatekkkk",
    "type": "server",
    "domain": null,
    "description": "description for certificatehhh",
    "private_key": "-----BEGIN PRIVATE KEY-----
MIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J
+B7kYwsMhRcgdcj8KCnX1nfzTvl2ksXITQ2o9BkpStnPetB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCT
QukwMvqV8lCq39buNplgDOWzEP5AzqXtCOFYn6RTH5SRug4hKNN7sT1eYMsIHu7wtEBDKVgrLjOCe/
W2f8rLT1zEsoAW2ChIZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwICRLU08kEo04Z9H/
```

```

AgMBAEcgEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/
HlfvCARftGgMaYWPNSCJRMXB7tPwpQu19esjz4Z/
cR2Je4fTLPrffGUsHFgZjv5OQBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8ISETq8YaXngBO6vES9LMhHkNK
Krciu9YkInNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9MEGpfYI6AdHlwFzCT/
RNAXhP82lg2gUJSgAu66FFDjMwQXKbafKdP3zq4Up8a7AlekrguPtFV1vWklg
+bUFhgGaiAEYTPAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CTXUqgCZ08MKeV2jfdrlxRRwRl33SksQbzAQ/
qrLdT7GP3sCGqvKxWY2FPdFYf8kxGcCeZPcleZYCQAM41pjtsaM8tVbLWVVR8UtGBuQoPSph7JNF3Tm/JH/
fbwjpjP7dtU7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLriWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzjGlvS7y
QiYWU
+wthAr9urbWYdGZLS6VjoTkF6r7VZolLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBUxs40Yldp6w
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB1LVQhELG9CbKSdzKM71GyElmix/
T7FnJSHIWho1qVo6AQyduNWnAQD15pr8KAdXGAXZ1FQcb3KYa
+2fflERmazdOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak/735uP20KqkqNehZpC2dJei7OilRhCS/
dKASUXHSW4fptBnUxACYocdDxtY4Vhaf17FPMdvGl8ioYbvlHFh+XOXs9r1S8yeWnHoXMB6eXWmYKMrAoveLa
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4Ctfk9ojHjWB7pQUiUYpT
ZO9dm
+4fpCMn9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9lIukfaoXgjKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BULGKMWXzuEd3fy+1rCUwzOp9LSjtUYf4ege-----END PRIVATE KEY-----",
  "certificate" : "-----BEGIN CERTIFICATE-----
MIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMmTXlDb2t1wYw55IENBMB4X
DTE4MDcwMjEzZjU0N1oXDTQ1MTE5NzEzZjU0N1owFDESMBAGA1UEAwwJbG9jYXVxOjB3N0MlBjJANBgkqh
kiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAFQgzi3ucTX+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5U0NqPQZKUrZz3rQeL9mYiUTJPutYlFDDbB8CtIgV
+eyU9yJslWx/Bm5kWNPh97B9Yu9ppb2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/
W7jaSIazlsx+QM6l7QjhWj+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/
Ky09cxLKAfTgoZWQD2FAZJf9F7k1kYNwqITz3CPLZUUn7yw3nkOOTLMI28IEv0WYyD7CMJQks1NPJBKNOGfR/
wiDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/
AAABMBMGA1UdJQQMMAoGCCSGAQUFBwMBMA0GCSCqGSIb3DQEBCwUAA4IBAQA8IMQJxaTey7EjXtRSLVl
EAMftAQPG6jijNQuvIBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xIH
+xwwdSNnozaKzC87vwSeZKlOdl9I5I98TGKI6OoDaetzCwQYtHBMVQ4c7Ml8554Ft1mWst4dMAK2rzNYjvPR
LYlzp1HMnl6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOslalKdHerH08lqd+1BchScxCfk0xNITn1HZZGml
+vbmunok3A2luc14rnsrbcKGYqXGikySN6B2cRLBDK4Y3wChiW6NVytVqcx5/mZiYsGDVN+9QBd0eYUHce
+77s96i3l-----END CERTIFICATE-----",
  "admin_state_up" : true,
  "created_at" : "2019-03-31T22:23:51Z",
  "updated_at" : "2019-03-31T23:26:49Z",
  "expire_time" : "2045-11-17T13:25:47Z"
},
"request_id" : "a94af450-5ac0-4185-946c-27a59a16c1d3"
}

```

## Status Codes

Status Code	Description
200	Successful request.
400	Invalid request parameter.
403	Failed to verify the token.
404	The queried resource does not exist.
431	The request headers are too large.
494	The request header or cookie is too large.
500	System error.

## Error Codes

See [Error Codes](#).

## 5.5.4 Updating a Certificate

### Function

This API is used to update an SSL certificate.

### Constraints

If a certificate with a domain name is used by a listener, the domain name cannot be updated to an empty string (""), and the system returns the 409 Conflict status code.

### Calling Method

For details, see [Calling APIs](#).

### URI

PUT /v3/{project\_id}/elb/certificates/{certificate\_id}

**Table 5-107** Path Parameters

Parameter	Mandatory	Type	Description
certificate_id	Yes	String	Specifies a certificate ID.
project_id	Yes	String	Specifies the project ID of the certificate.

### Request Parameters

**Table 5-108** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-109** Request body parameters

Parameter	Mandatory	Type	Description
certificate	Yes	<a href="#">UpdateCertificateOption</a> object	Specifies the certificate.

**Table 5-110** UpdateCertificateOption

Parameter	Mandatory	Type	Description
certificate	No	String	Specifies the private key of the certificate. The value must be PEM encoded.  Maximum 65,536 character length is allowed, supports certificate chains with a maximum of 11 layers (including certificates and certificate chains).
description	No	String	Provides supplementary information about the certificate.  Minimum: <b>0</b> Maximum: <b>255</b>
name	No	String	Specifies the certificate name.  Minimum: <b>0</b> Maximum: <b>255</b>
private_key	No	String	Specifies the private key of the server certificate. The value must be PEM encoded. <ul style="list-style-type: none"><li>• This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>.</li><li>• This parameter will not take effect and an error will be returned if <b>type</b> is set to <b>client</b>. A maximum of 8,192 characters is allowed.</li></ul>

Parameter	Mandatory	Type	Description
domain	No	String	<p>Specifies the domain names used by the server certificate. This parameter will take effect only when <b>type</b> is set to <b>server</b>.</p> <ul style="list-style-type: none"><li>• The value can contain 0 to 10,000 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 100 domain names are allowed.</li><li>• A common domain name consists of several labels separated by periods (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit. Example: www.test.com</li><li>• A wildcard domain name is a domain name starts with an asterisk (*). Example: *.test.com</li></ul> <p>Minimum: <b>0</b> Maximum: <b>10000</b></p>

## Response Parameters

Status code: 200

Table 5-111 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
certificate	<b>CertificateInfo</b> object	Specifies the certificate.

**Table 5-112** CertificateInfo

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the certificate.  This parameter is unsupported. Please do not use it.
certificate	String	Specifies the certificate content. The value must be PEM encoded.
description	String	Provides supplementary information about the certificate.  Minimum: <b>1</b> Maximum: <b>255</b>
domain	String	Specifies the domain names used by the server certificate. This parameter will take effect only when <b>type</b> is set to <b>server</b> . <ul style="list-style-type: none"><li>• The value can contain 0 to 10,000 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 100 domain names are allowed.</li><li>• A common domain name consists of several labels separated by periods (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit. Example: www.test.com</li><li>• A wildcard domain name is a domain name starts with an asterisk (*). Example: *.test.com</li></ul> Minimum: <b>1</b> Maximum: <b>10000</b>
id	String	Specifies the certificate ID.
name	String	Specifies the certificate name.  Minimum: <b>1</b> Maximum: <b>255</b>
private_key	String	Specifies the private key of the server certificate. The value must be PEM encoded. <ul style="list-style-type: none"><li>• This parameter will be ignored even if <b>type</b> is set to <b>client</b>. A CA certificate can still be created and used normally.</li><li>• This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>. If you enter an invalid private key, an error is returned.</li></ul>



Parameter	Type	Description
type	String	Specifies the certificate type. The value can be <b>server</b> or <b>client</b> . <b>server</b> indicates server certificates, and <b>client</b> indicates CA certificates. The default value is <b>server</b> .
created_at	String	Specifies the time when the certificate was created.
updated_at	String	Specifies the time when the certificate was updated.
expire_time	String	Specifies the time when the certificate expires.
project_id	String	Specifies the project ID of the certificate.

## Example Requests

Modifying the name and description of a certificate

```
PUT https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/certificates/233a325e5e3e4ce8beeb320aa714cc12
```

```
{
  "certificate": {
    "name": "My Certificate",
    "description": "Update my Certificate."
  }
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "certificate": {
    "private_key": "-----BEGIN PRIVATE KEY-----
MIIEVgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J
+B7kYwsMhRcgdcj8KCnX1nfzTvl2ksXITQ2o9BkpStnPetB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMD30gH6QoP3cq7PGWcuZKV7hjd1tjCT
QukwMvqV8lqc39buNplgDOWzEP5AzqXtCOFYn6RTH5SRug4hKNN7sT1eYMsHu7wtEBDKVgrLjOCe/
W2f8rLT1zEsoAW2ChZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08kEo04Z9H/
AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/
HlfvCARftGgMaYWPSNcJRMXB7tPwpQu19esjz4Z/
cR2Je4fTLPrffGUsHFgZjv5OQBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYnBbcfgh8lSETq8YaXngBO6vES9LMhHkNK
Krciu9YkInNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvJTXcoU6fm7gYdHAD6jk9lc9MEGpfYI6AdHlwFZcT/
RNAxhP82lg2gUJSgAu66FfdjMwQXKbafKdP3zq4Up8a7AlekrquPtfV1vWklg
+bUFhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CTXUqgCZo8MKeV2jf2drLxRRwRL33SksQbzAQ/
qrLdT7GP3sCGqvkxWY2FPdFYf8kxGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGbuQoPSph7JNF3Tm/JH/
fbwjP7dtJ7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLriWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7y
QiYWU
+wthAr9urbWYdGZIS6VjoTkF6r7VZoLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDRfpHB5utBUxs40Yldp6w
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB1lVQhELGI9CbKsDzKM71GyElmix/
T7FnSHIWHo1qVo6AQyduNwNAQD15pr8KAdXGAZZ1FQcb3KYa
+2fflERmazdOTwJYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak/735uP20KKqhNehZpC2dJei7OilRhCS/
dKASUXHSW4fptBnUxACYocdDxtY4Vhaf17FPMdvG18ioYbvLHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqLLaOGBAJKD4wHW54PwD4Ctfk9ojHjWB7pQUYpT
ZO9dm
```

```
+4fpCMn9Okf43AE2yAOaAP94GdzdJkxfciXKcsYr9IluKfaoXgjKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BUIGKMWXzuEd3fy+1rCUwzOp9LSjtYf4ege-----END PRIVATE KEY-----",
  "description" : "Update my Certificate.",
  "domain" : null,
  "created_at" : "2019-03-31T22:23:51Z",
  "expire_time" : "2045-11-17T13:25:47Z",
  "id" : "233a325e5e3e4ce8beeb320aa714cc12",
  "name" : "My Certificate",
  "certificate" : "-----BEGIN CERTIFICATE-----
MIIC4TCCAcmgAwIBAgIcEREwDQYJKoZIhvcNAQELBQAwFzEVMBMGGA1UEAxMMTXIDb21wYW55IENBMB4X
DTE4MDcwMjEzZmU0N1oXDTQ1MTEyNzEzZmU0N1owFDESMBAGA1UEAwwJbG9jYXVxob3N0MIIIBjANBgkqh
kiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA0FQGzi3ucTX+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUIHXCFcGp19Z3807yNpLF5U0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDbB8CtIlgV
+eyU9yYJslWx/Bm5kWNPh97B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6fCHKt/
W7jaSlAzlsxD+QM6L7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/
Ky09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPILZUUn7yw3nkOOtLMI28IEv0Wyyd7CMJQkS1NPJBKNOGfR/
wIDAQABoZowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/
AAABMBMGGA1UdJQQMMAoGCCsGAQUFBwMBMA0GCsSQGSIb3DQEBCwUAA4IBAQA8IMQJxaTey7EjXtRLSVL
EAMftAQPG6jjjNQUVlBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xIH
+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDaemzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPR
LYlzp1HMnl6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml
+vbmunok3A2luc14rnsrbcGyqGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZIYsGDVN+9QBd0eYUHce
+77s96i3l-----END CERTIFICATE-----",
  "admin_state_up" : true,
  "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
  "updated_at" : "2019-03-31T23:26:49Z",
  "type" : "server"
},
"request_id" : "d9abea6b-98ee-4ad4-8c5d-185ded48742f"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.5.5 Deleting a Certificate

### Function

This API is used to delete an SSL certificate.

### Constraints

If the certificate is used by a listener, the certificate cannot be deleted, and the 409 Conflict error code will be displayed.

### Calling Method

For details, see [Calling APIs](#).

## URI

DELETE /v3/{project\_id}/elb/certificates/{certificate\_id}

**Table 5-113** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
certificate_id	Yes	String	Specifies a certificate ID.

## Request Parameters

**Table 5-114** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

None

## Example Requests

Deleting an SSL certificate

```
DELETE https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/certificates/  
233a325e5e3e4ce8beeb320aa714cc12
```

## Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

## 5.6 Security Policy

### 5.6.1 Creating a Custom Security Policy

#### Function

This API is used to create a custom security policy. If you need a custom security policy, you need to specify **security\_policy\_id** when you add an HTTPS listener to your load balancer.

#### Calling Method

For details, see [Calling APIs](#).

#### URI

POST /v3/{project\_id}/elb/security-policies

**Table 5-115** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

#### Request Parameters

**Table 5-116** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-117** Request body parameters

Parameter	Mandatory	Type	Description
security_policy	Yes	<a href="#">CreateSecurityPolicyOption</a> object	Specifies the custom security policy.

**Table 5-118** CreateSecurityPolicyOption

Parameter	Mandatory	Type	Description
name	No	String	Specifies the name of the custom security policy. The default value is "". Minimum: <b>0</b> Maximum: <b>255</b>
description	No	String	Provides supplementary information about the custom security policy. The default value is "". Minimum: <b>0</b> Maximum: <b>255</b>
enterprise_project_id	No	String	Specifies the enterprise project ID.
protocols	Yes	Array of strings	Lists the TLS protocols supported by the custom security policy. Value options: <b>TLSv1</b> , <b>TLSv1.1</b> , <b>TLSv1.2</b> , and <b>TLSv1.3</b> . Array Length: <b>1 - 5</b>

Parameter	Mandatory	Type	Description
ciphers	Yes	Array of strings	<p>Lists the cipher suites supported by the custom security policy. The following cipher suites are supported: ECDHE-RSA-AES256-GCM-SHA384,ECDHE-RSA-AES128-GCM-SHA256,ECDHE-ECDSA-AES256-GCM-SHA384,ECDHE-ECDSA-AES128-GCM-SHA256,AES128-GCM-SHA256,AES256-GCM-SHA384,ECDHE-ECDSA-AES128-SHA256,ECDHE-RSA-AES128-SHA256,AES128-SHA256,AES256-SHA256,ECDHE-ECDSA-AES256-SHA384,ECDHE-RSA-AES256-SHA384,ECDHE-ECDSA-AES128-SHA,ECDHE-RSA-AES128-SHA,ECDHE-RSA-AES256-SHA,ECDHE-ECDSA-AES256-SHA,AES128-SHA,AES256-SHA,CAMELLIA128-SHA,DES-CBC3-SHA,CAMELLIA256-SHA,ECDHE-RSA-CHACHA20-POLY1305,ECDHE-ECDSA-CHACHA20-POLY1305,TLS_AES_128_GCM_SHA256,TLS_AES_256_GCM_SHA384,TLS_CHACHA20_POLY1305_SHA256,TLS_AES_128_CCM_SHA256,TLS_AES_128_CCM_8_SHA256</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• The protocol and cipher suite must match. At least one cipher suite must match the protocol.</li> <li>• You can match the protocol and cipher suite based on system security policy.</li> </ul> <p>Array Length: <b>1 - 30</b></p>

## Response Parameters

Status code: 201

**Table 5-119** Response body parameters

Parameter	Type	Description
security_policy	<a href="#">SecurityPolicy</a> object	Lists the security policies.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-120** SecurityPolicy

Parameter	Type	Description
id	String	Specifies the ID of the custom security policy.
project_id	String	Specifies the project ID of the custom security policy.
name	String	Specifies the name of the custom security policy.
description	String	Provides supplementary information about the custom security policy.
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the listeners that use the custom security policies.
protocols	Array of strings	Lists the TLS protocols supported by the custom security policy.
ciphers	Array of strings	Lists the cipher suites supported by the custom security policy.
created_at	String	Specifies the time when the custom security policy was created.
updated_at	String	Specifies the time when the custom security policy was updated.

**Table 5-121** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

Creating a custom security policy and specifying the TLS protocol and cipher suite

```
POST https://{ELB_Endpoint}/v3/7a9941d34fc1497d8d0797429ecfd354/elb/security-policies
```

```
{
  "security_policy": {
    "name": "test_1",
    "description": "test1",
    "protocols": [ "TLSv1.2", "TLSv1", "TLSv1.3" ],
    "ciphers": [ "ECDHE-ECDSA-AES128-SHA", "TLS_AES_128_GCM_SHA256",
"TLS_AES_128_CCM_8_SHA256" ]
  }
}
```

## Example Responses

### Status code: 201

Normal response to POST requests.

```
{
  "request_id": "6b50d914-41f2-4e50-8929-e8a9837dbe75",
  "security_policy": {
    "id": "d74e27c9-4d60-427c-a11f-21142117c433",
    "name": "test_1",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "description": "test1",
    "protocols": [ "TLSv1.2", "TLSv1", "TLSv1.3" ],
    "ciphers": [ "ECDHE-ECDSA-AES128-SHA", "TLS_AES_128_GCM_SHA256",
"TLS_AES_128_CCM_8_SHA256" ],
    "listeners": [ ],
    "created_at": "2021-03-26T01:33:12Z",
    "updated_at": "2021-03-26T01:33:12Z"
  }
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.6.2 Querying Custom Security Policies

### Function

This API is used to query custom security policies.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.



## Calling Method

For details, see [Calling APIs](#).

## URI

GET /v3/{project\_id}/elb/security-policies

**Table 5-122** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-123** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If this parameter is not specified, the first page will be queried.</li><li>• This parameter cannot be left blank or set to an invalid ID.</li></ul>
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>

Parameter	Mandatory	Type	Description
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>
id	No	Array	Specifies the ID of the custom security policy. Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .
name	No	Array	Specifies the name of the custom security policy. Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .
description	No	Array	Provides supplementary information about the custom security policy. Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xxx</i> .
protocols	No	Array	Specifies the TLS protocols supported by the custom security policy. (Multiple protocols are separated using spaces.) Multiple protocols can be queried in the format of <i>protocols=xxx&amp;protocols=xxx</i> .

Parameter	Mandatory	Type	Description
ciphers	No	Array	Specifies the cipher suites supported by the custom security policy. (Multiple cipher suites are separated using colons.) Multiple cipher suites can be queried in the format of <i>ciphers=xxx&amp;ciphers=xxx</i> .

## Request Parameters

Table 5-124 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

Table 5-125 Response body parameters

Parameter	Type	Description
security_policies	Array of <b>SecurityPolicy</b> objects	Lists the security policies.
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<b>PageInfo</b> object	Shows pagination information.

Table 5-126 SecurityPolicy

Parameter	Type	Description
id	String	Specifies the ID of the custom security policy.
project_id	String	Specifies the project ID of the custom security policy.

Parameter	Type	Description
name	String	Specifies the name of the custom security policy.
description	String	Provides supplementary information about the custom security policy.
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the listeners that use the custom security policies.
protocols	Array of strings	Lists the TLS protocols supported by the custom security policy.
ciphers	Array of strings	Lists the cipher suites supported by the custom security policy.
created_at	String	Specifies the time when the custom security policy was created.
updated_at	String	Specifies the time when the custom security policy was updated.

**Table 5-127** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-128** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

## Example Requests

Querying custom security policies on each page

```
GET https://{ELB_Endpoint}/v3/7a9941d34fc1497d8d0797429ecfd354/elb/security-policies?limit=2
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "request_id": "88424a61-6fa1-4850-aa8b-ce31d78abcf2",
  "security_policies": [ {
    "id": "03cf511a-d130-445e-9b02-12d7049ddabf",
    "name": "test_security_policy",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "description": "",
    "protocols": [ "TLSv1", "TLSv1.3" ],
    "ciphers": [ "AES128-SHA", "TLS_AES_128_GCM_SHA256", "TLS_AES_256_GCM_SHA384",
"TLS_CHACHA20_POLY1305_SHA256", "TLS_AES_128_CCM_SHA256", "TLS_AES_128_CCM_8_SHA256" ],
    "listeners": [ {
      "id": "6f7c0d75-81c4-4735-87a0-dc5df0f27f5a"
    } ],
    "created_at": "2021-02-06T10:07:10Z",
    "updated_at": "2021-02-06T10:07:10Z"
  }, {
    "id": "04e5d426-628c-42db-867c-fcaefbed2cab",
    "name": "update_securitypolicy",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "description": "",
    "protocols": [ "TLSv1.2", "TLSv1.1", "TLSv1.3" ],
    "ciphers": [ "CAMELLIA128-SHA", "TLS_AES_256_GCM_SHA384", "TLS_CHACHA20_POLY1305_SHA256",
"TLS_AES_128_CCM_SHA256", "TLS_AES_128_CCM_8_SHA256" ],
    "listeners": [ {
      "id": "e19b7379-807e-47fb-b53d-46aff540580c"
    } ],
    "created_at": "2021-02-06T10:01:58Z",
    "updated_at": "2021-03-20T07:18:59Z"
  } ],
  "page_info": {
    "next_marker": "04e5d426-628c-42db-867c-fcaefbed2cab",
    "previous_marker": "03cf511a-d130-445e-9b02-12d7049ddabf",
    "current_count": 2
  }
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

### 5.6.3 Querying Details of a Custom Security Policy

#### Function

This API is used to query details of a custom security policy.

#### Calling Method

For details, see [Calling APIs](#).

## URI

GET /v3/{project\_id}/elb/security-policies/{security\_policy\_id}

**Table 5-129** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
security_policy_id	Yes	String	Specifies the ID of the custom security policy.

## Request Parameters

**Table 5-130** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

**Status code: 200**

**Table 5-131** Response body parameters

Parameter	Type	Description
security_policy	<a href="#">SecurityPolicy</a> object	This API is used to query details of a custom security policy.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-132** SecurityPolicy

Parameter	Type	Description
id	String	Specifies the ID of the custom security policy.
project_id	String	Specifies the project ID of the custom security policy.
name	String	Specifies the name of the custom security policy.

Parameter	Type	Description
description	String	Provides supplementary information about the custom security policy.
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the listeners that use the custom security policies.
protocols	Array of strings	Lists the TLS protocols supported by the custom security policy.
ciphers	Array of strings	Lists the cipher suites supported by the custom security policy.
created_at	String	Specifies the time when the custom security policy was created.
updated_at	String	Specifies the time when the custom security policy was updated.

**Table 5-133** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

Querying details of a custom security policy

```
GET https://{ELB_Endpoint}/v3/7a9941d34fc1497d8d0797429ecfd354/elb/security-policies/c73e0138-9bdc-40fb-951e-6a1598266ccd
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "security_policy": {
    "id": "c73e0138-9bdc-40fb-951e-6a1598266ccd",
    "name": "update_securitypolicy",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "description": "",
    "protocols": [ "TLSv1", "TLSv1.1", "TLSv1.2", "TLSv1.3" ],
    "ciphers": [ "AES128-SHA", "AES256-GCM-SHA384", "ECDHE-ECDSA-AES128-GCM-SHA256", "ECDHE-RSA-AES256-GCM-SHA384", "ECDHE-RSA-AES256-SHA", "TLS_AES_128_GCM_SHA256", "TLS_AES_256_GCM_SHA384", "TLS_CHACHA20_POLY1305_SHA256", "TLS_AES_128_CCM_SHA256", "TLS_AES_128_CCM_8_SHA256" ],
    "listeners": [ {
      "id": "8e92b7c3-cdae-4039-aa62-c76d09a5950a"
    } ],
    "created_at": "2021-03-20T09:48:14Z",
    "updated_at": "2021-03-20T12:45:50Z"
  },
}
```

```
"request_id" : "dab5d1de-c115-4623-b21d-363478fa0af4"  
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.6.4 Updating a Custom Security Policy

### Function

This API is used to update a custom security policy.

### Constraints

If **protocols** or **ciphers** is updated, the modification takes effect immediately on all listeners that use the custom security policy. Updating other fields does not affect the listeners.

### Calling Method

For details, see [Calling APIs](#).

### URI

PUT /v3/{project\_id}/elb/security-policies/{security\_policy\_id}

**Table 5-134** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
security_policy_id	Yes	String	Specifies the ID of the custom security policy.



## Request Parameters

**Table 5-135** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-136** Request body parameters

Parameter	Mandatory	Type	Description
security_policy	Yes	<a href="#">UpdateSecurityPolicyOption</a> object	Specifies the custom security policy to be updated.

**Table 5-137** UpdateSecurityPolicyOption

Parameter	Mandatory	Type	Description
name	No	String	Specifies the name of the custom security policy. Minimum: <b>0</b> Maximum: <b>255</b>
description	No	String	Provides supplementary information about the custom security policy. Minimum: <b>0</b> Maximum: <b>255</b>
protocols	No	Array of strings	Lists the TLS protocols supported by the custom security policy. Value options: <b>TLSv1, TLSv1.1, TLSv1.2, and TLSv1.3</b> Array Length: <b>1 - 5</b>

Parameter	Mandatory	Type	Description
ciphers	No	Array of strings	<p>Lists the cipher suites supported by the custom security policy. The following cipher suites are supported:</p> <p>ECDHE-RSA-AES256-GCM-SHA384,ECDHE-RSA-AES128-GCM-SHA256,ECDHE-ECDSA-AES256-GCM-SHA384,ECDHE-ECDSA-AES128-GCM-SHA256,AES128-GCM-SHA256,AES256-GCM-SHA384,ECDHE-ECDSA-AES128-SHA256,ECDHE-RSA-AES128-SHA256,AES128-SHA256,AES256-SHA256,ECDHE-ECDSA-AES256-SHA384,ECDHE-RSA-AES256-SHA384,ECDHE-ECDSA-AES128-SHA,ECDHE-RSA-AES128-SHA,ECDHE-RSA-AES256-SHA,ECDHE-ECDSA-AES256-SHA,AES128-SHA,AES256-SHA,CAMELLIA128-SHA,DES-CBC3-SHA,CAMELLIA256-SHA,ECDHE-RSA-CHACHA20-POLY1305,ECDHE-ECDSA-CHACHA20-POLY1305,TLS_AES_128_GCM_SHA256,TLS_AES_256_GCM_SHA384,TLS_CHACHA20_POLY1305_SHA256,TLS_AES_128_CCM_SHA256,TLS_AES_128_CCM_8_SHA256</p> <p>Note:</p> <ul style="list-style-type: none"> <li>The protocol and cipher suite must match. At least one cipher suite must match the protocol.</li> <li>You can match the protocol and cipher suite based on system security policy.</li> </ul> <p>Array Length: <b>1 - 30</b></p>

## Response Parameters

Status code: 200

**Table 5-138** Response body parameters

Parameter	Type	Description
security_policy	<a href="#">SecurityPolicy</a> object	Specifies the custom security policy that has been updated.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-139** SecurityPolicy

Parameter	Type	Description
id	String	Specifies the ID of the custom security policy.
project_id	String	Specifies the project ID of the custom security policy.
name	String	Specifies the name of the custom security policy.
description	String	Provides supplementary information about the custom security policy.
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the listeners that use the custom security policies.
protocols	Array of strings	Lists the TLS protocols supported by the custom security policy.
ciphers	Array of strings	Lists the cipher suites supported by the custom security policy.
created_at	String	Specifies the time when the custom security policy was created.
updated_at	String	Specifies the time when the custom security policy was updated.

**Table 5-140** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

Changing the TLS protocol and cipher suite used by a custom security policy

```
PUT https://{ELB_Endpoint}/v3/7a9941d34fc1497d8d0797429ecfd354/elb/security-policies/  
c73e0138-9bdc-40fb-951e-6a1598266ccd
```

```
{
  "security_policy" : {
    "name" : "update_securitypolicy",
    "protocols" : [ "TLSv1.2", "TLSv1.1", "TLSv1.3" ],
    "ciphers" : [ "CAMELLIA128-SHA", "TLS_CHACHA20_POLY1305_SHA256", "TLS_AES_128_CCM_SHA256",
"TLS_AES_128_CCM_8_SHA256" ]
  }
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "request_id" : "7fa73388-06b7-476d-9b0b-64f83de86ed4",
  "security_policy" : {
    "id" : "c73e0138-9bdc-40fb-951e-6a1598266ccd",
    "name" : "update_securitypolicy",
    "project_id" : "7a9941d34fc1497d8d0797429ecfd354",
    "description" : "",
    "protocols" : [ "TLSv1.2", "TLSv1.1", "TLSv1.3" ],
    "ciphers" : [ "CAMELLIA128-SHA", "TLS_CHACHA20_POLY1305_SHA256", "TLS_AES_128_CCM_SHA256",
"TLS_AES_128_CCM_8_SHA256" ],
    "listeners" : [ {
      "id" : "8e92b7c3-cdae-4039-aa62-c76d09a5950a"
    } ],
    "created_at" : "2021-03-20T09:48:14Z",
    "updated_at" : "2021-03-26T01:30:31Z"
  }
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.6.5 Deleting a Custom Security Policy

### Function

This API is used to delete a custom security policy.

### Constraints

A custom security policy that has been used by a listener cannot be deleted.

### Calling Method

For details, see [Calling APIs](#).

## URI

DELETE /v3/{project\_id}/elb/security-policies/{security\_policy\_id}

**Table 5-141** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
security_policy_id	Yes	String	Specifies the ID of the custom security policy.

## Request Parameters

**Table 5-142** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

None

## Example Requests

Deleting a custom security policy

```
DELETE https://{ELB_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/security-policies/8722e0e0-9cc9-4490-9660-8c9a5732fbb0
```

## Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

## 5.6.6 Querying System Security Policies

### Function

This API is used to query system security policies.

System security policies are available to all users and cannot be created or modified.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/system-security-policies

**Table 5-143** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

### Request Parameters

**Table 5-144** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

**Status code: 200**

**Table 5-145** Response body parameters

Parameter	Type	Description
system_security_policies	Array of <a href="#">SystemSecurityPolicy</a> objects	Lists system security policies.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-146** SystemSecurityPolicy

Parameter	Type	Description
name	String	Specifies the name of the system security policy.
protocols	String	Lists the TLS protocols supported by the system security policy.
ciphers	String	Lists the cipher suites supported by the system security policy.
project_id	String	Specifies the project ID.

## Example Requests

Querying system security policies

```
GET https://{ELB_Endpoint}/v3/7a9941d34fc1497d8d0797429ecfd354/elb/system-security-policies
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "request_id": "fa83d976-e617-4a96-9a43-5bdb33011f30",
  "system_security_policies": [ {
    "name": "tls-1-0",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "protocols": "TLSv1.2 TLSv1.1 TLSv1",
    "ciphers": "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-ECDSA-AES256-SHA:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-RSA-AES256-SHA384:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:AES128-SHA:AES256-SHA"
  }, {
    "name": "tls-1-0-inherit",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "protocols": "TLSv1.2 TLSv1.1 TLSv1",
    "ciphers": "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-ECDSA-AES256-SHA:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-RSA-AES256-SHA:DHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA"
  }, {
    "name": "tls-1-1",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "protocols": "TLSv1.2 TLSv1.1",
    "ciphers": "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-ECDSA-AES256-SHA:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-RSA-AES256-SHA384:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:AES128-SHA:AES256-SHA"
  }, {
    "name": "tls-1-2",
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",

```

```

"protocols" : "TLSv1.2",
"cipher" : "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-
AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-ECDSA-AES256-
SHA:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-
GCM-SHA384:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-RSA-AES256-
SHA384:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:AES128-SHA:AES256-SHA"
}, {
"name" : "tls-1-2-strict",
"project_id" : "7a9941d34fc1497d8d0797429ecfd354",
"protocols" : "TLSv1.2",
"cipher" : "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-
AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-
GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-RSA-AES128-SHA256:AES128-
SHA256:AES256-SHA256:ECDHE-RSA-AES256-SHA384"
}, {
"name" : "tls-1-2-fs",
"project_id" : "7a9941d34fc1497d8d0797429ecfd354",
"protocols" : "TLSv1.2",
"cipher" : "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-
AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-
GCM-SHA256:ECDHE-RSA-AES128-SHA256:ECDHE-RSA-AES256-SHA384"
}, {
"name" : "tls-1-0-with-1-3",
"project_id" : "7a9941d34fc1497d8d0797429ecfd354",
"protocols" : "TLSv1.3 TLSv1.2 TLSv1.1 TLSv1",
"cipher" : "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-
AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-ECDSA-AES256-
SHA:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-
GCM-SHA384:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-RSA-AES256-
SHA384:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:AES128-SHA:AES256-
SHA:TLS_AES_128_GCM_SHA256:TLS_AES_256_GCM_SHA384:TLS_CHACHA20_POLY1305_SHA256:TLS_AES_1
28_CCM_SHA256:TLS_AES_128_CCM_8_SHA256"
}, {
"name" : "tls-1-2-fs-with-1-3",
"project_id" : "7a9941d34fc1497d8d0797429ecfd354",
"protocols" : "TLSv1.3 TLSv1.2",
"cipher" : "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-
AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-
GCM-SHA256:ECDHE-RSA-AES128-SHA256:ECDHE-RSA-AES256-
SHA384:TLS_AES_128_GCM_SHA256:TLS_AES_256_GCM_SHA384:TLS_CHACHA20_POLY1305_SHA256:TLS_A
ES_128_CCM_SHA256:TLS_AES_128_CCM_8_SHA256"
}, {
"name" : "hybrid-policy-1-0",
"project_id" : "7a9941d34fc1497d8d0797429ecfd354",
"protocols" : "TLSv1.2 TLSv1.1",
"cipher" : "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-ECDSA-
AES128-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-ECDSA-AES256-
SHA:ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-
GCM-SHA384:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-RSA-AES256-
SHA384:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:AES128-SHA:AES256-SHA"
}
}
}

```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).



## 5.7 IP Address Group

### 5.7.1 Creating an IP Address Group

#### Function

This API is used to create an IP address group. The IP address can contain IP addresses or CIDR blocks, and both IPv4 and IPv6 addresses are supported. 0.0.0.0 will be considered the same as 0.0.0.0/32. If you enter both 0.0.0.0 and 0.0.0.0/32, only one will be kept. 0:0:0:0:0:0:1 will be considered the same as ::1 and ::1/128. If you enter 0:0:0:0:0:0:1, ::1 and ::1/128, only one will be kept.

#### Calling Method

For details, see [Calling APIs](#).

#### URI

POST /v3/{project\_id}/elb/ipgroups

**Table 5-147** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

#### Request Parameters

**Table 5-148** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-149** Request body parameters

Parameter	Mandatory	Type	Description
ipgroup	Yes	<a href="#">CreateIpGroupOption</a> object	Specifies the request body for creating an IP address group.

**Table 5-150** CreatelpGroupOption

Parameter	Mandatory	Type	Description
project_id	No	String	Specifies the project ID of the IP address group. Minimum: <b>32</b> Maximum: <b>32</b>
description	No	String	Provides supplementary information about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>
name	No	String	Specifies the IP address group name. Minimum: <b>0</b> Maximum: <b>255</b>
ip_list	Yes	Array of <b>CreatelpGroupIpOption</b> objects	Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address. Array Length: <b>0 - 300</b>
enterprise_project_id	No	String	Specifies the enterprise project ID of the IP address group.

**Table 5-151** CreatelpGroupIpOption

Parameter	Mandatory	Type	Description
ip	Yes	String	Specifies the IP addresses in the IP address group. Both IPv4 and IPv6 are supported.
description	No	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

## Response Parameters

Status code: 201

**Table 5-152** Response body parameters

Parameter	Type	Description
ipgroup	<b>IpGroup</b> object	Specifies the response body for creating an IP address group.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-153** IpGroup

Parameter	Type	Description
id	String	Specifies the ID of the IP address group.
name	String	Specifies the IP address group name.
description	String	Provides supplementary information about the IP address group.
ip_list	Array of <b>IpInfo</b> objects	Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address. Array Length: <b>0 - 300</b>
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners with which the IP address group is associated.
project_id	String	Specifies the project ID of the IP address group.
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
created_at	String	Specifies the time when the IP address group was created.
updated_at	String	Specifies the time when the IP address group was updated.

**Table 5-154** IpInfo

Parameter	Type	Description
ip	String	Specifies the IP addresses in the IP address group.
description	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

**Table 5-155** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

Creating an IP address group and specifying IP addresses

POST https://{ELB\_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/ipgroups

```
{
  "ipgroup" : {
    "name" : "test_ipg",
    "ip_list" : [ {
      "ip" : "192.168.1.123"
    }, {
      "ip" : "192.168.3.0/24",
      "description" : "test_ip"
    }, {
      "ip" : "2001:0DB8:02de:0000:0000:0000:0000:0e13"
    } ]
  }
}
```

## Example Responses

**Status code: 201**

Normal response to POST requests.

```
{
  "ipgroup" : {
    "description" : "",
    "id" : "8722e0e0-9cc9-4490-9660-8c9a5732fbb0",
    "name" : "test_ipg",
    "project_id" : "45977fa2dbd7482098dd68d0d8970117",
    "ip_list" : [ {
      "ip" : "192.168.1.123",
      "description" : ""
    }, {
      "ip" : "192.168.3.0/24",
      "description" : "test_ip"
    } ],
    "listeners" : [ {
      "id" : "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
    }, {
      "id" : "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
    } ],
    "created_at" : "2018-01-16T03:19:16",
    "updated_at" : "2018-01-16T03:19:16"
  }
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.7.2 Querying IP Address Groups

### Function

This API is used to query IP address groups.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/ipgroups

**Table 5-156** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-157** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>This parameter must be used together with <b>limit</b>.</li><li>If this parameter is not specified, the first page will be queried.</li><li>This parameter cannot be left blank or set to an invalid ID.</li></ul>

Parameter	Mandatory	Type	Description
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>
id	No	Array	Specifies the ID of the IP address group.
name	No	Array	Specifies the name of the IP address group.
description	No	Array	Provides supplementary information about the IP address group.
ip_list	No	Array	Lists the IP addresses in the IP address group. Multiple IP addresses are separated with commas.
enterprise_project_id	No	Array	Specifies the enterprise project ID.

## Request Parameters

**Table 5-158** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-159** Response body parameters

Parameter	Type	Description
ipgroups	Array of <b>IpGroup</b> objects	Lists the returned IP address groups.
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<b>PageInfo</b> object	Shows pagination information.

**Table 5-160** IpGroup

Parameter	Type	Description
id	String	Specifies the ID of the IP address group.
name	String	Specifies the IP address group name.
description	String	Provides supplementary information about the IP address group.
ip_list	Array of <b>IpInfo</b> objects	Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address. Array Length: <b>0 - 300</b>
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners with which the IP address group is associated.
project_id	String	Specifies the project ID of the IP address group.
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
created_at	String	Specifies the time when the IP address group was created.
updated_at	String	Specifies the time when the IP address group was updated.

**Table 5-161** IpInfo

Parameter	Type	Description
ip	String	Specifies the IP addresses in the IP address group.
description	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

**Table 5-162** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-163** PageInfo

Parameter	Type	Description
previous_mar ker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

## Example Requests

Querying IP address groups on each page

```
GET https://{ELB_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/ipgroups?limit=1
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "ipgroups" : [ {
    "description" : "",
    "id" : "8722e0e0-9cc9-4490-9660-8c9a5732fbb0",
    "name" : "test_ipg",
    "project_id" : "45977fa2dbd7482098dd68d0d8970117",
    "ip_list" : [ {
      "ip" : "192.168.1.123",
      "description" : ""
    }, {
      "ip" : "192.168.3.0/24",
      "description" : "test_ip"
    }
  ]
}
```



```
    } ],
    "listeners" : [ {
      "id" : "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
    }, {
      "id" : "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
    } ],
    "created_at" : "2018-01-16T03:19:16",
    "updated_at" : "2018-01-16T03:19:16"
  } ],
  "page_info" : {
    "previous_marker" : "1d321f77-bc7b-45d3-9cfe-d7c0b65a3620",
    "current_count" : 1
  },
  "request_id" : "8d9f423c-8766-4b6a-9952-275a88ac1ce3"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.7.3 Viewing Details of an IP Address Group

### Function

This API is used to view details of an IP address group.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/ipgroups/{ipgroup\_id}

**Table 5-164** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
ipgroup_id	Yes	String	Specifies the ID of the IP address group.

## Request Parameters

**Table 5-165** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

**Status code: 200****Table 5-166** Response body parameters

Parameter	Type	Description
ipgroup	<b>IpGroup</b> object	Specifies the IP address group.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-167** IpGroup

Parameter	Type	Description
id	String	Specifies the ID of the IP address group.
name	String	Specifies the IP address group name.
description	String	Provides supplementary information about the IP address group.
ip_list	Array of <b>IpInfo</b> objects	Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address. Array Length: <b>0 - 300</b>
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners with which the IP address group is associated.
project_id	String	Specifies the project ID of the IP address group.
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
created_at	String	Specifies the time when the IP address group was created.
updated_at	String	Specifies the time when the IP address group was updated.

**Table 5-168** IpInfo

Parameter	Type	Description
ip	String	Specifies the IP addresses in the IP address group.
description	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

**Table 5-169** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

Viewing details of an IP address group

```
GET https://{ELB_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/ipgroups/8722e0e0-9cc9-4490-9660-8c9a5732fbb0
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "ipgroup": {
    "description": "",
    "id": "8722e0e0-9cc9-4490-9660-8c9a5732fbb0",
    "name": "test_ipg",
    "project_id": "45977fa2dbd7482098dd68d0d8970117",
    "ip_list": [ {
      "ip": "192.168.1.123",
      "description": ""
    }, {
      "ip": "192.168.3.0/24",
      "description": "test_ip"
    } ],
    "listeners": [ {
      "id": "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
    }, {
      "id": "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
    } ],
    "created_at": "2018-01-16T03:19:16",
    "updated_at": "2018-01-16T03:19:16"
  }
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.7.4 Updating an IP Address Group

### Function

This API is used to update an IP address group. All IP addresses in the IP address group will be overwritten, and the IP addresses that are not included in the **ip\_list** parameter in the request body will be removed. The IP address can contain IP addresses or CIDR blocks, and both IPv4 and IPv6 addresses are supported. 0.0.0.0 will be considered the same as 0.0.0.0/32. If you enter both 0.0.0.0 and 0.0.0.0/32, only one will be kept. 0:0:0:0:0:0:1 will be considered the same as ::1 and ::1/128. If you enter 0:0:0:0:0:0:1, ::1 and ::1/128, only one will be kept.

### Calling Method

For details, see [Calling APIs](#).

### URI

PUT /v3/{project\_id}/elb/ipgroups/{ipgroup\_id}

**Table 5-170** Path Parameters

Parameter	Mandatory	Type	Description
ipgroup_id	Yes	String	Specifies the ID of the IP address group.
project_id	Yes	String	Specifies the project ID.

### Request Parameters

**Table 5-171** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-172** Request body parameters

Parameter	Mandatory	Type	Description
ipgroup	Yes	<a href="#">UpdateIpGroupOption</a> object	Specifies the IP address group.

**Table 5-173** UpdateIpGroupOption

Parameter	Mandatory	Type	Description
description	No	String	Provides supplementary information about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>
name	No	String	Specifies the IP address group name. Minimum: <b>0</b> Maximum: <b>255</b>
ip_list	No	Array of <a href="#">UpdateIpGroupOption</a> objects	Lists the IP addresses in the IP address group. Array Length: <b>0 - 300</b>

**Table 5-174** UpdateIpGroupIpOption

Parameter	Mandatory	Type	Description
ip	Yes	String	Specifies the IP addresses in the IP address group. Both IPv4 and IPv6 are supported. If the IP address already exists, you can only update its description.
description	No	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

## Response Parameters

Status code: **200**

**Table 5-175** Response body parameters

Parameter	Type	Description
ipgroup	<b>IpGroup</b> object	Specifies the IP address group.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-176** IpGroup

Parameter	Type	Description
id	String	Specifies the ID of the IP address group.
name	String	Specifies the IP address group name.
description	String	Provides supplementary information about the IP address group.
ip_list	Array of <b>IpInfo</b> objects	Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address. Array Length: <b>0 - 300</b>
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners with which the IP address group is associated.
project_id	String	Specifies the project ID of the IP address group.
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
created_at	String	Specifies the time when the IP address group was created.
updated_at	String	Specifies the time when the IP address group was updated.

**Table 5-177** IpInfo

Parameter	Type	Description
ip	String	Specifies the IP addresses in the IP address group.
description	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

**Table 5-178** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

Changing all the IP addresses in an IP address group

```
PUT https://{ELB_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/ipgroups/8722e0e0-9cc9-4490-9660-8c9a5732fbb0
```

```
{
  "ipgroup" : {
    "name" : "test_ipg",
    "ip_list" : [ {
      "ip" : "192.168.1.123"
    }, {
      "ip" : "192.168.3.0/24",
      "description" : "test_ip"
    } ]
  }
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "ipgroup" : {
    "description" : "",
    "id" : "8722e0e0-9cc9-4490-9660-8c9a5732fbb0",
    "name" : "test_ipg",
    "project_id" : "45977fa2dbd7482098dd68d0d8970117",
    "ip_list" : [ {
      "ip" : "192.168.1.123",
      "description" : ""
    }, {
      "ip" : "192.168.3.0/24",
      "description" : "test_ip"
    } ],
    "listeners" : [ {
      "id" : "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
    }, {
      "id" : "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
    } ],
    "created_at" : "2018-01-16T03:19:16",
    "updated_at" : "2018-01-16T03:19:16"
  }
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.7.5 Deleting an IP Address Group

### Function

This API is used to delete an IP address group.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/ipgroups/{ipgroup\_id}

**Table 5-179** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
ipgroup_id	Yes	String	Specifies the ID of the IP address group.

### Request Parameters

**Table 5-180** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

None

### Example Requests

Deleting an IP address group

```
DELETE https://{ELB_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/ipgroups/8722e0e0-9cc9-4490-9660-8c9a5732fbb0
```

### Example Responses

None



## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

## 5.7.6 Updating IP Addresses in an IP Address Group

### Function

This API is used to add IP addresses to an IP address group or update the descriptions of the existing IP addresses.

### Calling Method

For details, see [Calling APIs](#).

### URI

POST /v3/{project\_id}/elb/ipgroups/{ipgroup\_id}/iplist/create-or-update

**Table 5-181** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
ipgroup_id	Yes	String	Specifies the ID of the IP address group.

### Request Parameters

**Table 5-182** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	Specifies the token used for IAM authentication.

**Table 5-183** Request body parameters

Parameter	Mandatory	Type	Description
ipgroup	No	<a href="#">UpdateIpListOption</a> object	Specifies the request parameter for updating the IP addresses of an IP address group.

**Table 5-184** UpdateIpListOption

Parameter	Mandatory	Type	Description
name	No	String	Specifies the name of the IP address group.
ip_list	No	Array of <a href="#">UpdateIpGroupOption</a> objects	Specifies the IP addresses in the IP address group.
description	No	String	Specifies supplementary information about the IP address group.

**Table 5-185** UpdateIpGroupOption

Parameter	Mandatory	Type	Description
ip	Yes	String	Specifies the IP addresses in the IP address group. Both IPv4 and IPv6 are supported. If the IP address already exists, you can only update its description.
description	No	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

## Response Parameters

Status code: 200

**Table 5-186** Response body parameters

Parameter	Type	Description
ipgroup	<b>IpGroup</b> object	Shows IP address information.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-187** IpGroup

Parameter	Type	Description
id	String	Specifies the ID of the IP address group.
name	String	Specifies the IP address group name.
description	String	Provides supplementary information about the IP address group.
ip_list	Array of <b>IpInfo</b> objects	Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address. Array Length: <b>0 - 300</b>
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners with which the IP address group is associated.
project_id	String	Specifies the project ID of the IP address group.
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
created_at	String	Specifies the time when the IP address group was created.
updated_at	String	Specifies the time when the IP address group was updated.

**Table 5-188** IpInfo

Parameter	Type	Description
ip	String	Specifies the IP addresses in the IP address group.
description	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

**Table 5-189** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

### Updating IP addresses in an IP address group

```
PUT https://{ELB_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/ipgroups/  
8722e0e0-9cc9-4490-9660-8c9a5732fbb0/iplist/create-or-update
```

```
{  
  "ipgroup" : {  
    "name" : "test_ipg",  
    "ip_list" : [ {  
      "ip" : "192.168.1.123",  
      "description" : "test"  
    }, {  
      "ip" : "192.168.1.120",  
      "description" : "test update ip0"  
    } ]  
  }  
}
```

## Example Responses

### Status code: 200

Successful request.

```
{  
  "request_id" : "46d0dcbec23987f1429491731dce0feb",  
  "ipgroup" : {  
    "id" : "353d6c3b-aca0-40b7-a059-fad8b20419e7",  
    "name" : "test_ipg",  
    "project_id" : "060576798a80d5762fafc01a9b5eedc7",  
    "description" : "",  
    "ip_list" : [ {  
      "ip" : "192.168.1.120",  
      "description" : "test update ip0"  
    }, {  
      "ip" : "192.168.1.122",  
      "description" : "test update ip2"  
    }, {  
      "ip" : "192.168.1.123",  
      "description" : "test"  
    } ],  
    "listeners" : [ {  
      "id" : "acef0c4d-3bd5-4cd0-8d83-c53e5b1fd652"  
    }, {  
      "id" : "edb23879-5511-4412-8b7b-9574de7a1295"  
    } ],  
    "created_at" : "2021-11-29T10:40:30Z",  
    "updated_at" : "2022-12-05T13:14:01Z"  
  }  
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.7.7 Deleting IP Addresses from an IP Address Group

### Function

This API is used to delete IP addresses from an IP address group.

### Calling Method

For details, see [Calling APIs](#).

### URI

POST /v3/{project\_id}/elb/ipgroups/{ipgroup\_id}/iplist/batch-delete

**Table 5-190** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
ipgroup_id	Yes	String	Specifies the ID of the IP address group.

### Request Parameters

**Table 5-191** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	No	String	Specifies the token used for IAM authentication.

**Table 5-192** Request body parameters

Parameter	Mandatory	Type	Description
ipgroup	No	<a href="#">BatchDeleteIpListOption</a> object	Specifies IP addresses that will be deleted from an IP address group in batches.

**Table 5-193** BatchDeleteIpListOption

Parameter	Mandatory	Type	Description
ip_list	No	Array of <a href="#">IpGroupIp</a> objects	Specifies IP addresses.

**Table 5-194** IpGroupIp

Parameter	Mandatory	Type	Description
ip	Yes	String	Specifies an IP address or IP address range.

## Response Parameters

Status code: 200

**Table 5-195** Response body parameters

Parameter	Type	Description
ipgroup	<a href="#">IpGroup</a> object	Shows IP address information.
request_id	String	Specifies the request ID. The value is automatically generated.

**Table 5-196** IpGroup

Parameter	Type	Description
id	String	Specifies the ID of the IP address group.
name	String	Specifies the IP address group name.
description	String	Provides supplementary information about the IP address group.

Parameter	Type	Description
ip_list	Array of <b>IpInfo</b> objects	Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address. Array Length: <b>0 - 300</b>
listeners	Array of <b>ListenerRef</b> objects	Lists the IDs of listeners with which the IP address group is associated.
project_id	String	Specifies the project ID of the IP address group.
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
created_at	String	Specifies the time when the IP address group was created.
updated_at	String	Specifies the time when the IP address group was updated.

**Table 5-197** IpInfo

Parameter	Type	Description
ip	String	Specifies the IP addresses in the IP address group.
description	String	Provides remarks about the IP address group. Minimum: <b>0</b> Maximum: <b>255</b>

**Table 5-198** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

## Example Requests

Deleting IP addresses from an IP address group

```
PUT https://{ELB_Endpoint}/v3/45977fa2dbd7482098dd68d0d8970117/elb/ipgroups/8722e0e0-9cc9-4490-9660-8c9a5732fbb0/iplist/batch-delete
```

```
{
  "ipgroup" : {
    "ip_list" : [ {
      "ip" : "192.168.1.123"
    }, {
      "ip" : "192.168.3.0/24"
    } ]
  }
}
```

```
}  
}
```

## Example Responses

### Status code: 200

Successful request.

```
{  
  "ipgroup" : {  
    "description" : "",  
    "id" : "8722e0e0-9cc9-4490-9660-8c9a5732fbb0",  
    "name" : "test_ipg",  
    "project_id" : "45977fa2dbd7482098dd68d0d8970117",  
    "ip_list" : [ {  
      "ip" : "192.168.1.122",  
      "description" : ""  
    } ],  
    "listeners" : [ {  
      "id" : "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"  
    }, {  
      "id" : "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"  
    } ],  
    "created_at" : "2018-01-16T03:19:16",  
    "updated_at" : "2018-01-16T03:19:16"  
  }  
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

# 5.8 Listener

## 5.8.1 Adding a Listener

### Function

This API is used to add a listener to a load balancer.

### Constraints

The protocol used by the listener can be TCP, UDP, HTTP, or HTTPS.

- For load balancing at Layer 4, the protocol can only be TCP or UDP.
- For load balancing at Layer 7, the protocol can only be HTTP, HTTPS or QUIC.



- For load balancing both at Layer 4 and Layer 7, TCP, UDP, HTTP, HTTPS and QUIC are supported.

## Calling Method

For details, see [Calling APIs](#).

## URI

POST /v3/{project\_id}/elb/listeners

**Table 5-199** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-200** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-201** Request body parameters

Parameter	Mandatory	Type	Description
listener	Yes	<a href="#">CreateListenerOption</a> object	Specifies the listener.

**Table 5-202** CreateListenerOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the listener. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.

Parameter	Mandatory	Type	Description
default_pool_id	No	String	Specifies the ID of the default backend server group. If there is no matched forwarding policy, requests will be forwarded to the default backend server for processing. Minimum: <b>1</b> Maximum: <b>36</b>
client_ca_tls_container_ref	No	String	Specifies the ID of the CA certificate used by the listener. This parameter is available only when <b>type</b> is set to <b>client</b> . Minimum: <b>1</b> Maximum: <b>128</b>
default_tls_container_ref	No	String	Specifies the ID of the server certificate used by the listener. This parameter is available only when the listener's protocol is HTTPS and <b>type</b> is set to <b>server</b> . Minimum: <b>1</b> Maximum: <b>128</b>
description	No	String	Provides supplementary information about the listener. Minimum: <b>0</b> Maximum: <b>255</b>

Parameter	Mandatory	Type	Description
http2_enable	No	Boolean	<p>Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note:</p> <ul style="list-style-type: none"> <li>• This parameter is available only for HTTPS listeners.</li> <li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li> <li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li> </ul>
insert_headers	No	<a href="#">ListenerInsertHeaders</a> object	<p>Specifies the HTTP header fields that can transmit required information to backend servers. For example, the X-Forwarded-ELB-IP header field can transmit the EIP of the load balancer to backend servers.</p>
loadbalancer_id	Yes	String	<p>Specifies the ID of the load balancer that the listener is added to. Note: A listener can be added to only one load balancer.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>
name	No	String	<p>Specifies the listener name. Note: If you leave the listener name empty, you cannot locate it on the listener list and view its details.</p> <p>Minimum: <b>0</b> Maximum: <b>255</b></p>
project_id	No	String	<p>Specifies the project ID.</p> <p>Minimum: <b>1</b> Maximum: <b>32</b></p>

Parameter	Mandatory	Type	Description
protocol	Yes	String	<p>Specifies the protocol used by the listener.</p> <p>The value can be <b>TCP, HTTP, UDP, HTTPS, TERMINATED_HTTPS, QUIC</b> or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• Protocol used by HTTPS listeners added to a shared load balancer can only be set to <b>TERMINATED_HTTPS</b>. If <b>HTTPS</b> is passed, the value will be automatically changed to <b>TERMINATED_HTTPS</b>.</li> <li>• Protocol used by HTTPS listeners added to a dedicated load balancer can only be set to <b>HTTPS</b>. If <b>TERMINATED_HTTPS</b> is passed, the value will be automatically changed to <b>HTTPS</b>.</li> </ul>
protocol_port	No	Integer	<p>Specifies the port used by the listener. The QUIC listener port cannot be 4789 or the same as the UDP listener port. If this parameter is set to <b>0</b>, <b>port_ranges</b> is required.</p> <p>Minimum: <b>0</b> Maximum: <b>65535</b></p>

Parameter	Mandatory	Type	Description
sni_container_refs	No	Array of strings	<p>Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• The domain names of all SNI certificates must be unique.</li> <li>• The total number of domain names of all SNI certificates cannot exceed 50.</li> <li>• QUIC listeners support only RSA certificates.</li> </ul> <p>Array Length: <b>0 - 50</b></p>
sni_match_algo	No	String	<p>Specifies how wildcard domain name matches with the SNI certificates used by the listener.</p> <p><b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match.</p> <p>The default value is <b>wildcard</b>.</p>
tags	No	Array of <b>Tag</b> objects	Lists the tags.
tls_ciphers_policy	No	String	Specifies the security policy used by the listener.
security_policy_id	No	String	<p>Specifies the ID of the custom security policy.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>36</b></p>

Parameter	Mandatory	Type	Description
enable_member_retry	No	Boolean	<p>Specifies whether to enable health check retries for backend servers. The value can be <b>true</b> (enable health check retries) or <b>false</b> (disable health check retries). The default value is <b>true</b>. Note:</p> <ul style="list-style-type: none"><li>• If a shared load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li><li>• If a dedicated load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, <b>HTTPS</b>, or <b>QUIC</b>.</li></ul>
keepalive_timeout	No	Integer	<p>Specifies the idle timeout duration, in seconds. If there are no requests reaching the load balancer after the idle timeout duration elapses, the load balancer will disconnect the connection with the client and establish a new connection when there is a new request.</p> <ul style="list-style-type: none"><li>• For TCP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li><li>• For HTTP and HTTPS listeners, the value ranges from <b>1</b> to <b>4000</b>, and the default value is <b>60</b>.</li><li>• For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul>

Parameter	Mandatory	Type	Description
client_timeout	No	Integer	<p>Specifies the timeout duration for waiting for a response from a client, in seconds. There are two situations:</p> <ul style="list-style-type: none"> <li>• If the client fails to send a request header to the load balancer within the timeout duration, the request will be interrupted.</li> <li>• If the interval between two consecutive request bodies reaching the load balancer is greater than the timeout duration, the connection will be disconnected.</li> </ul> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p> <p>Minimum: <b>1</b> Maximum: <b>300</b> Default: <b>60</b></p>
member_timeout	No	Integer	<p>Specifies the timeout duration for waiting for a response from a backend server, in seconds. If the backend server fails to respond after the timeout duration elapses, the load balancer will stop waiting and return HTTP 504 Gateway Timeout to the client.</p> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p> <p>Minimum: <b>1</b> Maximum: <b>300</b> Default: <b>60</b></p>
ipgroup	No	<a href="#">CreateListenerIpGroupOption</a> object	Specifies the IP address group associated with the listener.

Parameter	Mandatory	Type	Description
transparent_client_ip_enable	No	Boolean	Specifies whether to pass source IP addresses of the clients to backend servers.
proxy_protocol_enable	No	Boolean	Specifies whether to enable the ProxyProtocol option to pass the source IP addresses of the clients to backend servers. This parameter is available only for TLS listeners and does not take effect for other types of listeners.



Parameter	Mandatory	Type	Description
enhance_l7policy_enable	No	Boolean	<p>Specifies whether to enable advanced forwarding. If advanced forwarding is enabled, more flexible forwarding policies and rules are supported. The value can be <b>true</b> (enable advanced forwarding) or <b>false</b> (disable advanced forwarding), and the default value is <b>false</b>.</p> <p>The following scenarios are supported:</p> <ul style="list-style-type: none"> <li>• <b>action</b> can be set to <b>REDIRECT_TO_URL</b> (requests will be redirected to another URL) or <b>Fixed_RESPONSE</b> (a fixed response body will be returned to clients).</li> <li>• Parameters <b>priority</b>, <b>redirect_url_config</b>, and <b>fixed_response_config</b> can be specified in a forwarding policy.</li> <li>• Parameter <b>type</b> can be set to <b>METHOD</b>, <b>HEADER</b>, <b>QUERY_STRING</b>, or <b>SOURCE_IP</b> for a forwarding rule.</li> <li>• If <b>type</b> is set to <b>HOST_NAME</b> for a forwarding rule, the value parameter of the forwarding rule supports wildcard asterisks (*).</li> <li>• The <b>conditions</b> parameter can be specified for forwarding rules.</li> </ul> <p><b>NOTE</b> This function cannot be disabled after it is enabled.</p>

Parameter	Mandatory	Type	Description
quic_config	No	CreateListenerQuicConfigOption object	<p>Specifies the QUIC configuration for the current listener. This parameter is valid only when <b>protocol</b> is set to <b>HTTPS</b>.</p> <p>For TCP, UDP, HTTP, QUIC listeners, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b></p> <p>The client sends a normal HTTP request that contains information indicating that the QUIC protocol is supported.</p> <p>If QUIC upgrade is enabled for the listeners, QUIC port and version information will be added to the response header.</p> <p>When the client sends both HTTPS and QUIC requests to the server, if the QUIC request is successfully sent, QUIC protocol will be used for subsequent communications.</p>

**Table 5-203** ListenerInsertHeaders

Parameter	Mandatory	Type	Description
X-Forwarded-ELB-IP	No	Boolean	Specifies whether to transparently transmit the load balancer EIP to backend servers. If <b>X-Forwarded-ELB-IP</b> is set to <b>true</b> , the load balancer EIP will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Port	No	Boolean	Specifies whether to transparently transmit the listening port of the load balancer to backend servers. If <b>X-Forwarded-Port</b> is set to <b>true</b> , the listening port of the load balancer will be stored in the HTTP header and passed to backend servers.

Parameter	Mandatory	Type	Description
X-Forwarded-For-Port	No	Boolean	Specifies whether to transparently transmit the source port of the client to backend servers. If <b>X-Forwarded-For-Port</b> is set to <b>true</b> , the source port of the client will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Host	No	Boolean	Specifies whether to rewrite the <b>X-Forwarded-Host</b> header. If <b>X-Forwarded-Host</b> is set to <b>true</b> , <b>X-Forwarded-Host</b> in the request header from the clients can be set to <b>Host</b> in the request header sent from the load balancer to backend servers.
X-Forwarded-Proto	No	Boolean	If <b>X-Forwarded-Proto</b> is set to <b>true</b> , the listener protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Real-IP	No	Boolean	If <b>X-Real-IP</b> is set to <b>true</b> , the source IP address of the client can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-ELB-ID	No	Boolean	If <b>X-Forwarded-ELB-ID</b> is set to <b>true</b> , the load balancer ID can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Certificate-ID	No	Boolean	If <b>X-Forwarded-TLS-Certificate-ID</b> is set to <b>true</b> , the certificate ID of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Protocol	No	Boolean	If <b>X-Forwarded-TLS-Protocol</b> is set to <b>true</b> , the algorithm protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.

Parameter	Mandatory	Type	Description
X-Forwarded-TLS-Cipher	No	Boolean	If <b>X-Forwarded-TLS-Cipher</b> is set to <b>true</b> , the algorithm suite of the load balancer can be transferred to backend servers through the HTTP header of the packet.

Table 5-204 Tag

Parameter	Mandatory	Type	Description
key	No	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	No	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

Table 5-205 CreateListenerIpGroupOption

Parameter	Mandatory	Type	Description
ipgroup_id	Yes	String	Specifies the ID of the IP address group associated with the listener. <ul style="list-style-type: none"><li>If <b>ip_list</b> is set to an empty array <b>[]</b> and <b>type</b> to <b>whitelist</b>, no IP addresses are allowed to access the listener.</li><li>If <b>ip_list</b> is set to an empty array <b>[]</b> and <b>type</b> to <b>blacklist</b>, any IP address is allowed to access the listener.</li></ul> Minimum: <b>1</b> Maximum: <b>3600</b>
enable_ipgroup	No	Boolean	Specifies whether to enable access control. <ul style="list-style-type: none"><li><b>true</b> (default): Access control will be enabled.</li><li><b>false</b>: Access control will be disabled.</li></ul>

Parameter	Mandatory	Type	Description
type	No	String	Specifies how access to the listener is controlled. <ul style="list-style-type: none"> <li>• <b>white</b> (default): A whitelist will be configured. Only IP addresses in the whitelist can access the listener.</li> <li>• <b>black</b>: A blacklist will be configured. IP addresses in the blacklist are not allowed to access the listener.</li> </ul>

**Table 5-206** CreateListenerQuicConfigOption

Parameter	Mandatory	Type	Description
quic_listener_id	Yes	String	Specifies the ID of the QUIC listener. Specifies the specified listener. The specified <b>quic_listener_id</b> must exist. The listener protocol must be <b>QUIC</b> and cannot be set to <b>null</b> , otherwise, it will conflict with <b>enable_quic_upgrade</b> .
enable_quic_upgrade	No	Boolean	Specifies whether to enable QUIC upgrade. <b>True</b> : QUIC upgrade is enabled. <b>False</b> (default): QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners. Default: <b>false</b>

## Response Parameters

Status code: 201

**Table 5-207** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
listener	<b>Listener</b> object	Specifies the listener.

**Table 5-208** Listener

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the listener. The value can only be <b>true</b> .  This parameter is unsupported. Please do not use it.
client_ca_tls_container_ref	String	Specifies the ID of the CA certificate used by the listener. This parameter is available only when <b>type</b> is set to <b>client</b> .
connection_limit	Integer	Specifies the maximum number of connections that the load balancer can establish with backend servers. The value <b>-1</b> indicates that the number of connections is not limited.  This parameter is unsupported. Please do not use it.
created_at	String	Specifies the time when the listener was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.
default_pool_id	String	Specifies the ID of the default backend server group. If there is no matched forwarding policy, requests are forwarded to the default backend server.
default_tls_container_ref	String	Specifies the ID of the server certificate used by the listener.
description	String	Provides supplementary information about the listener.
http2_enable	Boolean	Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note: <ul style="list-style-type: none"><li>• This parameter is available only for HTTPS listeners.</li><li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li><li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li></ul>
id	String	Specifies the listener ID.

Parameter	Type	Description
insert_headers	<a href="#">ListenerInsertHeaders</a> object	Specifies the HTTP header fields that can transmit required information to backend servers. For example, the X-Forwarded-ELB-IP header field can transmit the EIP of the load balancer to backend servers.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the ID of the load balancer that the listener is added to. A listener can be added to only one load balancer.
name	String	Specifies the listener name. Note: If you leave the listener name empty, you cannot locate it on the listener list and view its details.
project_id	String	Specifies the ID of the project where the listener is used.
protocol	String	Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , <b>HTTPS</b> , <b>TERMINATED_HTTPS</b> , <b>QUIC</b> , or <b>TLS</b> . Note: <ul style="list-style-type: none"> <li>Protocol used by HTTPS listeners added to a shared load balancer can only be set to <b>TERMINATED_HTTPS</b>. If <b>HTTPS</b> is passed, the value will be automatically changed to <b>TERMINATED_HTTPS</b>.</li> <li>Protocol used by HTTPS listeners added to a dedicated load balancer can only be set to <b>HTTPS</b>. If <b>TERMINATED_HTTPS</b> is passed, the value will be automatically changed to <b>HTTPS</b>.</li> </ul>
protocol_port	Integer	Specifies the port used by the listener. The QUIC listener port cannot be 4789 or the same as the UDP listener port. If this parameter is set to <b>0</b> , <b>port_ranges</b> is required. Minimum: <b>0</b> Maximum: <b>65535</b>
sni_container_refs	Array of strings	Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener. Note: <ul style="list-style-type: none"> <li>The domain names of all SNI certificates must be unique.</li> <li>The total number of domain names of all SNI certificates cannot exceed 50.</li> </ul>

Parameter	Type	Description
sni_match_algo	String	Specifies how wildcard domain name matches with the SNI certificates used by the listener. <b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match. The default value is <b>wildcard</b> .
tags	Array of <b>Tag</b> objects	Lists the tags.
updated_at	String	Specifies the time when the listener was updated, in the format of <i>yyyy-MM-dd" T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.
tls_ciphers_policy	String	Specifies the security policy used by the listener.
security_policy_id	String	Specifies the ID of the custom security policy.
enable_member_retry	Boolean	Specifies whether to enable health check retries for backend servers. The value can be <b>true</b> (enable health check retries) or <b>false</b> (disable health check retries). The default value is <b>true</b> . Note: <ul style="list-style-type: none"><li>• If a shared load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li><li>• If a dedicated load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, <b>HTTPS</b>, or <b>QUIC</b>.</li></ul>
keepalive_timeout	Integer	Specifies the idle timeout duration, in seconds. If there are no requests reaching the load balancer after the idle timeout duration elapses, the load balancer will disconnect the connection with the client and establish a new connection when there is a new request. <ul style="list-style-type: none"><li>• For TCP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li><li>• For HTTP and HTTPS listeners, the value ranges from <b>1</b> to <b>4000</b>, and the default value is <b>60</b>.</li><li>• For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul>



Parameter	Type	Description
client_timeout	Integer	<p>Specifies the timeout duration for waiting for a response from a client, in seconds. There are two situations:</p> <ul style="list-style-type: none"><li>• If the client fails to send a request header to the load balancer within the timeout duration, the request will be interrupted.</li><li>• If the interval between two consecutive request bodies reaching the load balancer is greater than the timeout duration, the connection will be disconnected.</li></ul> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>
member_timeout	Integer	<p>Specifies the timeout duration for waiting for a response from a backend server, in seconds. If the backend server fails to respond after the timeout duration elapses, the load balancer will stop waiting and return HTTP 504 Gateway Timeout to the client.</p> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>
ipgroup	<a href="#">ListenerIpGroup</a> object	<p>Specifies the IP address group associated with the listener.</p>
transparent_client_ip_enable	Boolean	<p>Specifies whether to pass source IP addresses of the clients to backend servers.</p>
proxy_protocol_enable	Boolean	<p>Specifies whether to enable the ProxyProtocol option to pass the source IP addresses of the clients to backend servers. This parameter is available only for TLS listeners and does not take effect for other types of listeners.</p>

Parameter	Type	Description
enhance_l7policy_enable	Boolean	<p>Specifies whether to enable advanced forwarding. If advanced forwarding is enabled, more flexible forwarding policies and rules are supported. The value can be <b>true</b> (enable advanced forwarding) or <b>false</b> (disable advanced forwarding), and the default value is <b>false</b>.</p> <p>The following scenarios are supported:</p> <ul style="list-style-type: none"> <li>• <b>action</b> can be set to <b>REDIRECT_TO_URL</b> (requests will be redirected to another URL) or <b>Fixed_RESPONSE</b> (a fixed response body will be returned to clients).</li> <li>• Parameters <b>priority</b>, <b>redirect_url_config</b>, and <b>fixed_response_config</b> can be specified in a forwarding policy.</li> <li>• Parameter <b>type</b> can be set to <b>METHOD</b>, <b>HEADER</b>, <b>QUERY_STRING</b>, or <b>SOURCE_IP</b> for a forwarding rule.</li> <li>• If <b>type</b> is set to <b>HOST_NAME</b> for a forwarding rule, the value parameter of the forwarding rule supports wildcard asterisks (*).</li> <li>• The <b>conditions</b> parameter can be specified for forwarding rules.</li> </ul> <p>Default: <b>false</b></p>
quic_config	<a href="#">ListenerQuicConfig</a> object	<p>Specifies the QUIC configuration for the current listener. This parameter is valid only when <b>protocol</b> is set to <b>HTTPS</b>.</p> <p>For TCP, UDP, HTTP, QUIC listeners, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b> The client sends a normal HTTP request that contains information indicating that the QUIC protocol is supported.</p> <p>If QUIC upgrade is enabled for the listeners, QUIC port and version information will be added to the response header.</p> <p>When the client sends both HTTPS and QUIC requests to the server, if the QUIC request is successfully sent, QUIC protocol will be used for subsequent communications.</p>

**Table 5-209** ListenerInsertHeaders

Parameter	Type	Description
X-Forwarded-ELB-IP	Boolean	Specifies whether to transparently transmit the load balancer EIP to backend servers. If <b>X-Forwarded-ELB-IP</b> is set to <b>true</b> , the load balancer EIP will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Port	Boolean	Specifies whether to transparently transmit the listening port of the load balancer to backend servers. If <b>X-Forwarded-Port</b> is set to <b>true</b> , the listening port of the load balancer will be stored in the HTTP header and passed to backend servers.
X-Forwarded-For-Port	Boolean	Specifies whether to transparently transmit the source port of the client to backend servers. If <b>X-Forwarded-For-Port</b> is set to <b>true</b> , the source port of the client will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Host	Boolean	Specifies whether to rewrite the <b>X-Forwarded-Host</b> header. If <b>X-Forwarded-Host</b> is set to <b>true</b> , <b>X-Forwarded-Host</b> in the request header from the clients can be set to <b>Host</b> in the request header sent from the load balancer to backend servers.
X-Forwarded-Proto	Boolean	If <b>X-Forwarded-Proto</b> is set to <b>true</b> , the listener protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Real-IP	Boolean	If <b>X-Real-IP</b> is set to <b>true</b> , the source IP address of the client can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-ELB-ID	Boolean	If <b>X-Forwarded-ELB-ID</b> is set to <b>true</b> , the load balancer ID can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Certificate-ID	Boolean	If <b>X-Forwarded-TLS-Certificate-ID</b> is set to <b>true</b> , the certificate ID of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Protocol	Boolean	If <b>X-Forwarded-TLS-Protocol</b> is set to <b>true</b> , the algorithm protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.

Parameter	Type	Description
X-Forwarded-TLS-Cipher	Boolean	If <b>X-Forwarded-TLS-Cipher</b> is set to <b>true</b> , the algorithm suite of the load balancer can be transferred to backend servers through the HTTP header of the packet.

**Table 5-210** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-211** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-212** ListenerIpGroup

Parameter	Type	Description
ipgroup_id	String	Specifies the ID of the IP address group associated with the listener. This parameter is mandatory when you create the IP address group and is optional when you update the IP address group. The specified IP address group must exist, and the value cannot be <b>null</b> .
enable_ipgroup	Boolean	Specifies whether to enable access control. <ul style="list-style-type: none"><li>• <b>true</b>: Access control is enabled.</li><li>• <b>false</b>: Access control is disabled.</li></ul> A listener with access control enabled can be directly deleted.

Parameter	Type	Description
type	String	Specifies how access to the listener is controlled. <ul style="list-style-type: none"> <li>• <b>white</b>: A whitelist is configured. Only IP addresses in the whitelist can access the listener.</li> <li>• <b>black</b>: A blacklist is configured. IP addresses in the blacklist are not allowed to access the listener.</li> </ul>

**Table 5-213** ListenerQuicConfig

Parameter	Type	Description
quic_listener_id	String	Specifies the ID of the QUIC listener. This parameter is mandatory for creation and is optional for update. The specified <b>quic_listener_id</b> must exist. The listener protocol must be <b>QUIC</b> and cannot be set to <b>null</b> , otherwise, it will conflict with <b>enable_quic_upgrade</b> .
enable_quic_upgrade	Boolean	Specifies whether to enable QUIC upgrade. <b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.

## Example Requests

- Example 1: Adding a TCP listener

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/listeners
```

```
{
  "listener": {
    "protocol_port": 80,
    "protocol": "TCP",
    "loadbalancer_id": "098b2f68-af1c-41a9-8efd-69958722af62",
    "name": "My listener",
    "admin_state_up": true,
    "insert_headers": {
      "X-Forwarded-ELB-IP": true
    }
  }
}
```

- Example 2: Adding an HTTPS listener

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/listeners
```

```
{
  "listener": {
    "protocol_port": 90,
    "protocol": "HTTPS",
    "loadbalancer_id": "098b2f68-af1c-41a9-8efd-69958722af62",
    "name": "My listener",
  }
}
```

```
"admin_state_up" : true,
"ipgroup" : {
  "ipgroup_id" : "0416b6f1-877f-4a51-987e-978b3f083542",
  "type" : "black"
},
"security_policy_id" : "8722e0e0-9cc9-4490-9660-8c9a5732fbb0",
"default_tls_container_ref" : "233a325e5e3e4ce8beeb320aa714cc12"
}
}
```

## Example Responses

### Status code: 201

Normal response to POST requests.

```
{
  "listener" : {
    "id" : "0b11747a-b139-492f-9692-2df0b1c87193",
    "name" : "My listener",
    "protocol_port" : 80,
    "protocol" : "TCP",
    "description" : null,
    "default_tls_container_ref" : null,
    "admin_state_up" : true,
    "loadbalancers" : [ {
      "id" : "098b2f68-af1c-41a9-8efd-69958722af62"
    } ],
    "client_ca_tls_container_ref" : null,
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "sni_container_refs" : [ ],
    "connection_limit" : -1,
    "member_timeout" : null,
    "client_timeout" : null,
    "keepalive_timeout" : null,
    "default_pool_id" : null,
    "ipgroup" : null,
    "tls_ciphers_policy" : "tls-1-0",
    "tags" : [ ],
    "created_at" : "2019-04-02T00:12:32Z",
    "updated_at" : "2019-04-02T00:12:32Z",
    "http2_enable" : false,
    "enable_member_retry" : true,
    "insert_headers" : {
      "X-Forwarded-ELB-IP" : true
    },
    "transparent_client_ip_enable" : false
  },
  "request_id" : "f4c4aca8-df16-42e8-8836-33e4b8e9aa8e"
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.8.2 Querying Listeners

### Function

This API is used to query listeners.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/listeners

**Table 5-214** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-215** Query Parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If this parameter is not specified, the first page will be queried.</li><li>• This parameter cannot be left blank or set to an invalid ID.</li></ul>

Parameter	Mandatory	Type	Description
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>
protocol_port	No	Array	Specifies the port used by the listener. Multiple ports can be queried in the format of <i>protocol_port=xxx&amp;protocol_port=xxx</i> .
protocol	No	Array	Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , <b>HTTPS</b> , <b>TERMINATED_HTTPS</b> , or <b>QUIC</b> . Note: <b>TERMINATED_HTTPS</b> is only available for the listeners of shared load balancers. Multiple protocols can be queried in the format of <i>protocol=xxx&amp;protocol=xxx</i> .
description	No	Array	Provides supplementary information about the listener. Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xxx</i> .
default_tls_container_ref	No	Array	Specifies the ID of the server certificate used by the listener. Multiple IDs can be queried in the format of <i>default_tls_container_ref=xxx&amp;default_tls_container_ref=xxx</i> .



Parameter	Mandatory	Type	Description
client_ca_tls_container_ref	No	Array	Specifies the ID of the CA certificate used by the listener. Multiple IDs can be queried in the format of <i>client_ca_tls_container_ref=xxx&amp;client_ca_tls_container_ref=xx</i> .
admin_state_up	No	Boolean	Specifies the administrative status of the listener. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
connection_limit	No	Array	Specifies the maximum number of connections that the load balancer can establish with backend servers. The value <b>-1</b> indicates that the number of connections is not limited. Multiple values can be queried in the format of <i>connection_limit=xxx&amp;connection_limit=xxx</i> . This parameter is unsupported. Please do not use it.
default_pool_id	No	Array	Specifies the ID of the default backend server group. If there is no matched forwarding policy, requests will be routed to the default backend server. Multiple IDs can be queried in the format of <i>default_pool_id=xxx&amp;default_pool_id=xxx</i> .
id	No	Array	Specifies the listener ID. Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .
name	No	Array	Specifies the name of the listener added to the load balancer. Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .

Parameter	Mandatory	Type	Description
http2_enable	No	Boolean	<p>Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note:</p> <ul style="list-style-type: none"> <li>• This parameter is available only for HTTPS listeners.</li> <li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li> <li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li> </ul>
loadbalancer_id	No	Array	<p>Specifies the ID of the load balancer that the listener is added to.</p> <p>Multiple IDs can be queried in the format of <i>loadbalancer_id=xxx&amp;loadbalancer_id=xxx</i>.</p>
tls_ciphers_policy	No	Array	<p>Specifies the security policy used by the listener.</p> <p>Multiple security policies can be queried in the format of <i>tls_ciphers_policy=xxx&amp;tls_ciphers_policy=xxx</i>.</p>
member_address	No	Array	<p>Specifies the private IP address bound to the backend server. This parameter is used only as a query condition and is not included in the response.</p> <p>Multiple IP addresses can be queried in the format of <i>member_address=xxx&amp;member_address=xxx</i>.</p>

Parameter	Mandatory	Type	Description
member_device_id	No	Array	<p>Specifies the ID of the cloud server that serves as a backend server. This parameter is used only as a query condition and is not included in the response.</p> <p>Multiple IDs can be queried in the format of <i>member_device_id=xxx&amp;member_device_id=xxx</i>.</p>
enterprise_project_id	No	Array	<p>Specifies the enterprise project ID.</p> <ul style="list-style-type: none"><li>• If this parameter is not passed, resources in the default enterprise project are queried, and authentication is performed based on the default enterprise project.</li><li>• If this parameter is passed, its value can be the ID of an existing enterprise project (resources in the specific enterprise project are required) or <b>all_granted_eps</b> (resources in all enterprise projects are queried).</li></ul> <p>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i>.</p>
enable_member_retry	No	Boolean	<p>Specifies whether to enable health check retries for backend servers.</p> <p>The value can be <b>true</b> (enable health check retries) or <b>false</b> (disable health check retries).</p>

Parameter	Mandatory	Type	Description
member_timeout	No	Array	<p>Specifies the timeout duration for waiting for a response from a backend server, in seconds. If the backend server fails to respond after the timeout duration elapses, the load balancer will stop waiting and return HTTP 504 Gateway Timeout to the client.</p> <p>The value ranges from <b>1</b> to <b>300</b>.</p> <p>Multiple durations can be queried in the format of <i>member_timeout=xxx&amp;member_timeout=xxx</i>.</p>
client_timeout	No	Array	<p>Specifies the timeout duration for waiting for a response from a client, in seconds. There are two situations:</p> <ul style="list-style-type: none"><li>• If the client fails to send a request header to the load balancer within the timeout duration, the request will be interrupted.</li><li>• If the interval between two consecutive request bodies reaching the load balancer is greater than the timeout duration, the connection will be disconnected.</li></ul> <p>The value ranges from <b>1</b> to <b>300</b>.</p> <p>Multiple durations can be queried in the format of <i>client_timeout=xxx&amp;client_timeout=xxx</i>.</p>

Parameter	Mandatory	Type	Description
keepalive_timeout	No	Array	<p>Specifies the idle timeout duration, in seconds. If there are no requests reaching the load balancer after the idle timeout duration elapses, the load balancer will disconnect the connection with the client and establish a new connection when there is a new request.</p> <ul style="list-style-type: none"><li>• For TCP listeners, the value ranges from <b>10</b> to <b>4000</b>.</li><li>• For HTTP, HTTPS, and TERMINATED_HTTPS listeners, the value ranges from <b>1</b> to <b>4000</b>.</li><li>• For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul> <p>Multiple durations can be queried in the format of <i>keepalive_timeout=xxx&amp;keepalive_timeout=xxx</i>.</p>
transparent_client_ip_enable	No	Boolean	<p>Specifies whether to pass source IP addresses of the clients to backend servers.</p> <p>This parameter is only available for TCP or UDP listeners of shared load balancers.</p> <ul style="list-style-type: none"><li>• <b>true</b>: Source IP addresses will be passed to backend servers.</li><li>• <b>false</b>: Source IP addresses will not be passed to backend servers.</li></ul>
proxy_protocol_enable	No	Boolean	<p>Specifies whether to enable the ProxyProtocol option to pass the source IP addresses of the clients to backend servers.</p> <p>This parameter is available only for TLS listeners and does not take effect for other types of listeners.</p>

Parameter	Mandatory	Type	Description
enhance_l7policy_enable	No	Boolean	Specifies whether to enable advanced forwarding. If you enable this function, you can configure more flexible forwarding policies and rules. <ul style="list-style-type: none"><li>• <b>true</b>: Enable advanced forwarding.</li><li>• <b>false</b>: Disable advanced forwarding.</li></ul>
member_instance_id	No	Array	Specifies the backend server ID. This parameter is used only as a query condition and is not included in the response. Multiple IDs can be queried in the format of <i>member_instance_id=xxx&amp;member_instance_id=xxx</i> .

## Request Parameters

Table 5-216 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

Table 5-217 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<a href="#">PageInfo</a> object	Shows pagination information about listeners.
listeners	Array of <a href="#">Listener</a> objects	Lists the listeners.

**Table 5-218** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

**Table 5-219** Listener

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the listener. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
client_ca_tls_container_ref	String	Specifies the ID of the CA certificate used by the listener. This parameter is available only when <b>type</b> is set to <b>client</b> .
connection_limit	Integer	Specifies the maximum number of connections that the load balancer can establish with backend servers. The value <b>-1</b> indicates that the number of connections is not limited. This parameter is unsupported. Please do not use it.
created_at	String	Specifies the time when the listener was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.
default_pool_id	String	Specifies the ID of the default backend server group. If there is no matched forwarding policy, requests are forwarded to the default backend server.
default_tls_container_ref	String	Specifies the ID of the server certificate used by the listener.
description	String	Provides supplementary information about the listener.

Parameter	Type	Description
http2_enable	Boolean	Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note: <ul style="list-style-type: none"><li>• This parameter is available only for HTTPS listeners.</li><li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li><li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li></ul>
id	String	Specifies the listener ID.
insert_headers	<a href="#">ListenerInsertHeaders</a> object	Specifies the HTTP header fields that can transmit required information to backend servers. For example, the X-Forwarded-ELB-IP header field can transmit the EIP of the load balancer to backend servers.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the ID of the load balancer that the listener is added to. A listener can be added to only one load balancer.
name	String	Specifies the listener name. Note: If you leave the listener name empty, you cannot locate it on the listener list and view its details.
project_id	String	Specifies the ID of the project where the listener is used.
protocol	String	Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , <b>HTTPS</b> , <b>TERMINATED_HTTPS</b> , <b>QUIC</b> , or <b>TLS</b> . Note: <ul style="list-style-type: none"><li>• Protocol used by HTTPS listeners added to a shared load balancer can only be set to <b>TERMINATED_HTTPS</b>. If <b>HTTPS</b> is passed, the value will be automatically changed to <b>TERMINATED_HTTPS</b>.</li><li>• Protocol used by HTTPS listeners added to a dedicated load balancer can only be set to <b>HTTPS</b>. If <b>TERMINATED_HTTPS</b> is passed, the value will be automatically changed to <b>HTTPS</b>.</li></ul>



Parameter	Type	Description
protocol_port	Integer	Specifies the port used by the listener. The QUIC listener port cannot be 4789 or the same as the UDP listener port. If this parameter is set to <b>0</b> , <b>port_ranges</b> is required. Minimum: <b>0</b> Maximum: <b>65535</b>
sni_container_refs	Array of strings	Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener. Note: <ul style="list-style-type: none"><li>• The domain names of all SNI certificates must be unique.</li><li>• The total number of domain names of all SNI certificates cannot exceed 50.</li></ul>
sni_match_algo	String	Specifies how wildcard domain name matches with the SNI certificates used by the listener. <b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match. The default value is <b>wildcard</b> .
tags	Array of <b>Tag</b> objects	Lists the tags.
updated_at	String	Specifies the time when the listener was updated, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.
tls_ciphers_policy	String	Specifies the security policy used by the listener.
security_policy_id	String	Specifies the ID of the custom security policy.
enable_member_retry	Boolean	Specifies whether to enable health check retries for backend servers. The value can be <b>true</b> (enable health check retries) or <b>false</b> (disable health check retries). The default value is <b>true</b> . Note: <ul style="list-style-type: none"><li>• If a shared load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li><li>• If a dedicated load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, <b>HTTPS</b>, or <b>QUIC</b>.</li></ul>

Parameter	Type	Description
keepalive_timeout	Integer	<p>Specifies the idle timeout duration, in seconds. If there are no requests reaching the load balancer after the idle timeout duration elapses, the load balancer will disconnect the connection with the client and establish a new connection when there is a new request.</p> <ul style="list-style-type: none"><li>For TCP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li><li>For HTTP and HTTPS listeners, the value ranges from <b>1</b> to <b>4000</b>, and the default value is <b>60</b>.</li><li>For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul>
client_timeout	Integer	<p>Specifies the timeout duration for waiting for a response from a client, in seconds. There are two situations:</p> <ul style="list-style-type: none"><li>If the client fails to send a request header to the load balancer within the timeout duration, the request will be interrupted.</li><li>If the interval between two consecutive request bodies reaching the load balancer is greater than the timeout duration, the connection will be disconnected.</li></ul> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>
member_timeout	Integer	<p>Specifies the timeout duration for waiting for a response from a backend server, in seconds. If the backend server fails to respond after the timeout duration elapses, the load balancer will stop waiting and return HTTP 504 Gateway Timeout to the client.</p> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>
ipgroup	<a href="#">ListenerIpGroup</a> object	Specifies the IP address group associated with the listener.
transparent_client_ip_enable	Boolean	Specifies whether to pass source IP addresses of the clients to backend servers.

Parameter	Type	Description
proxy_protocol_enable	Boolean	Specifies whether to enable the ProxyProtocol option to pass the source IP addresses of the clients to backend servers. This parameter is available only for TLS listeners and does not take effect for other types of listeners.
enhance_l7policy_enable	Boolean	<p>Specifies whether to enable advanced forwarding. If advanced forwarding is enabled, more flexible forwarding policies and rules are supported. The value can be <b>true</b> (enable advanced forwarding) or <b>false</b> (disable advanced forwarding), and the default value is <b>false</b>.</p> <p>The following scenarios are supported:</p> <ul style="list-style-type: none"><li>• <b>action</b> can be set to <b>REDIRECT_TO_URL</b> (requests will be redirected to another URL) or <b>Fixed_RESPONSE</b> (a fixed response body will be returned to clients).</li><li>• Parameters <b>priority</b>, <b>redirect_url_config</b>, and <b>fixed_response_config</b> can be specified in a forwarding policy.</li><li>• Parameter <b>type</b> can be set to <b>METHOD</b>, <b>HEADER</b>, <b>QUERY_STRING</b>, or <b>SOURCE_IP</b> for a forwarding rule.</li><li>• If <b>type</b> is set to <b>HOST_NAME</b> for a forwarding rule, the value parameter of the forwarding rule supports wildcard asterisks (*).</li><li>• The <b>conditions</b> parameter can be specified for forwarding rules.</li></ul> <p>Default: <b>false</b></p>

Parameter	Type	Description
quic_config	<a href="#">ListenerQuic Config</a> object	<p>Specifies the QUIC configuration for the current listener. This parameter is valid only when <b>protocol</b> is set to <b>HTTPS</b>.</p> <p>For TCP, UDP, HTTP, QUIC listeners, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b> The client sends a normal HTTP request that contains information indicating that the QUIC protocol is supported.</p> <p>If QUIC upgrade is enabled for the listeners, QUIC port and version information will be added to the response header.</p> <p>When the client sends both HTTPS and QUIC requests to the server, if the QUIC request is successfully sent, QUIC protocol will be used for subsequent communications.</p>

**Table 5-220** ListenerInsertHeaders

Parameter	Type	Description
X-Forwarded-ELB-IP	Boolean	Specifies whether to transparently transmit the load balancer EIP to backend servers. If <b>X-Forwarded-ELB-IP</b> is set to <b>true</b> , the load balancer EIP will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Port	Boolean	Specifies whether to transparently transmit the listening port of the load balancer to backend servers. If <b>X-Forwarded-Port</b> is set to <b>true</b> , the listening port of the load balancer will be stored in the HTTP header and passed to backend servers.
X-Forwarded-For-Port	Boolean	Specifies whether to transparently transmit the source port of the client to backend servers. If <b>X-Forwarded-For-Port</b> is set to <b>true</b> , the source port of the client will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Host	Boolean	Specifies whether to rewrite the <b>X-Forwarded-Host</b> header. If <b>X-Forwarded-Host</b> is set to <b>true</b> , <b>X-Forwarded-Host</b> in the request header from the clients can be set to <b>Host</b> in the request header sent from the load balancer to backend servers.

Parameter	Type	Description
X-Forwarded-Proto	Boolean	If <b>X-Forwarded-Proto</b> is set to <b>true</b> , the listener protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Real-IP	Boolean	If <b>X-Real-IP</b> is set to <b>true</b> , the source IP address of the client can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-ELB-ID	Boolean	If <b>X-Forwarded-ELB-ID</b> is set to <b>true</b> , the load balancer ID can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Certificate-ID	Boolean	If <b>X-Forwarded-TLS-Certificate-ID</b> is set to <b>true</b> , the certificate ID of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Protocol	Boolean	If <b>X-Forwarded-TLS-Protocol</b> is set to <b>true</b> , the algorithm protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Cipher	Boolean	If <b>X-Forwarded-TLS-Cipher</b> is set to <b>true</b> , the algorithm suite of the load balancer can be transferred to backend servers through the HTTP header of the packet.

**Table 5-221** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-222** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-223** ListenerIpGroup

Parameter	Type	Description
ipgroup_id	String	Specifies the ID of the IP address group associated with the listener.  This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.  The specified IP address group must exist, and the value cannot be <b>null</b> .
enable_ipgroup	Boolean	Specifies whether to enable access control. <ul style="list-style-type: none"><li>• <b>true</b>: Access control is enabled.</li><li>• <b>false</b>: Access control is disabled.</li></ul> A listener with access control enabled can be directly deleted.
type	String	Specifies how access to the listener is controlled. <ul style="list-style-type: none"><li>• <b>white</b>: A whitelist is configured. Only IP addresses in the whitelist can access the listener.</li><li>• <b>black</b>: A blacklist is configured. IP addresses in the blacklist are not allowed to access the listener.</li></ul>

**Table 5-224** ListenerQuicConfig

Parameter	Type	Description
quic_listener_id	String	Specifies the ID of the QUIC listener. This parameter is mandatory for creation and is optional for update. The specified <b>quic_listener_id</b> must exist. The listener protocol must be <b>QUIC</b> and cannot be set to <b>null</b> , otherwise, it will conflict with <b>enable_quic_upgrade</b> .
enable_quic_upgrade	Boolean	Specifies whether to enable QUIC upgrade. <b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.

## Example Requests

Queries the listeners on each page

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/listeners?limit=2&marker=0r31747a-b139-492f-2749-2df0b1c87193
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "listeners": [ {
    "id": "0b11747a-b139-492f-9692-2df0b1c87193",
    "name": "My listener",
    "protocol_port": 80,
    "protocol": "TCP",
    "ipgroup": null,
    "description": "My listener update.",
    "default_tls_container_ref": null,
    "admin_state_up": true,
    "loadbalancers": [ {
      "id": "098b2f68-af1c-41a9-8efd-69958722af62"
    } ],
    "member_timeout": null,
    "client_timeout": null,
    "keepalive_timeout": 300,
    "client_ca_tls_container_ref": null,
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "sni_container_refs": [ ],
    "connection_limit": -1,
    "default_pool_id": null,
    "tls_ciphers_policy": "tls-1-0",
    "tags": [ ],
    "created_at": "2019-04-02T00:12:32Z",
    "updated_at": "2019-04-02T17:43:46Z",
    "http2_enable": true,
    "insert_headers": {
      "X-Forwarded-ELB-IP": true
    },
    "transparent_client_ip_enable": false,
    "quic_config": null
  }, {
    "id": "0b455839-3ea7-4bac-ad26-35bf22f96ea4",
    "name": "listener-test",
    "protocol_port": 86,
    "protocol": "TERMINATED_HTTPS",
    "description": null,
    "default_tls_container_ref": "ad9b123e858d4652b80e89b9941e49a4",
    "admin_state_up": true,
    "loadbalancers": [ {
      "id": "309a0f61-0b62-45f2-97d1-742f3434338e"
    } ],
    "member_timeout": 60,
    "client_timeout": 60,
    "keepalive_timeout": 15,
    "client_ca_tls_container_ref": "7875ccb4c6b44cdb90ab2ab89892ab71",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "sni_container_refs": [ "7f41c96223d34ebaa3c8e836b6625ec0" ],
    "connection_limit": -1,
    "default_pool_id": "5e7e0175-d5d5-4f37-bfba-88a9524ad20b",
    "tls_ciphers_policy": "tls-1-0",
    "tags": [ ],
    "created_at": "2019-03-22T23:37:14Z",
    "updated_at": "2019-03-22T23:37:14Z",
    "http2_enable": false,
    "ipgroup": null,
    "insert_headers": {
      "X-Forwarded-ELB-IP": true
    },
    "transparent_client_ip_enable": false,
    "quic_config": null
  } ],
  "page_info": {
```

```
"next_marker" : "0b455839-3ea7-4bac-ad26-35bf22f96ea4",
"previous_marker" : "0b11747a-b139-492f-9692-2df0b1c87193",
"current_count" : 2
},
"request_id" : "774640ee-6863-4de3-8156-aff16f51a087"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.8.3 Viewing Details of a Listener

### Function

This API is used to view details of a listener.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/listeners/{listener\_id}

**Table 5-225** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.

### Request Parameters

**Table 5-226** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.



## Response Parameters

Status code: 200

Table 5-227 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
listener	<a href="#">Listener</a> object	Specifies the listener.

Table 5-228 Listener

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the listener. The value can only be <b>true</b> .  This parameter is unsupported. Please do not use it.
client_ca_tls_container_ref	String	Specifies the ID of the CA certificate used by the listener. This parameter is available only when <b>type</b> is set to <b>client</b> .
connection_limit	Integer	Specifies the maximum number of connections that the load balancer can establish with backend servers. The value <b>-1</b> indicates that the number of connections is not limited.  This parameter is unsupported. Please do not use it.
created_at	String	Specifies the time when the listener was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.
default_pool_id	String	Specifies the ID of the default backend server group. If there is no matched forwarding policy, requests are forwarded to the default backend server.
default_tls_container_ref	String	Specifies the ID of the server certificate used by the listener.
description	String	Provides supplementary information about the listener.

Parameter	Type	Description
http2_enable	Boolean	Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note: <ul style="list-style-type: none"><li>• This parameter is available only for HTTPS listeners.</li><li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li><li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li></ul>
id	String	Specifies the listener ID.
insert_headers	<a href="#">ListenerInsertHeaders</a> object	Specifies the HTTP header fields that can transmit required information to backend servers. For example, the X-Forwarded-ELB-IP header field can transmit the EIP of the load balancer to backend servers.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the ID of the load balancer that the listener is added to. A listener can be added to only one load balancer.
name	String	Specifies the listener name. Note: If you leave the listener name empty, you cannot locate it on the listener list and view its details.
project_id	String	Specifies the ID of the project where the listener is used.
protocol	String	Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , <b>HTTPS</b> , <b>TERMINATED_HTTPS</b> , <b>QUIC</b> , or <b>TLS</b> . Note: <ul style="list-style-type: none"><li>• Protocol used by HTTPS listeners added to a shared load balancer can only be set to <b>TERMINATED_HTTPS</b>. If <b>HTTPS</b> is passed, the value will be automatically changed to <b>TERMINATED_HTTPS</b>.</li><li>• Protocol used by HTTPS listeners added to a dedicated load balancer can only be set to <b>HTTPS</b>. If <b>TERMINATED_HTTPS</b> is passed, the value will be automatically changed to <b>HTTPS</b>.</li></ul>

Parameter	Type	Description
protocol_port	Integer	Specifies the port used by the listener. The QUIC listener port cannot be 4789 or the same as the UDP listener port. If this parameter is set to <b>0</b> , <b>port_ranges</b> is required. Minimum: <b>0</b> Maximum: <b>65535</b>
sni_container_refs	Array of strings	Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener. Note: <ul style="list-style-type: none"><li>• The domain names of all SNI certificates must be unique.</li><li>• The total number of domain names of all SNI certificates cannot exceed 50.</li></ul>
sni_match_algo	String	Specifies how wildcard domain name matches with the SNI certificates used by the listener. <b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match. The default value is <b>wildcard</b> .
tags	Array of <b>Tag</b> objects	Lists the tags.
updated_at	String	Specifies the time when the listener was updated, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.
tls_ciphers_policy	String	Specifies the security policy used by the listener.
security_policy_id	String	Specifies the ID of the custom security policy.
enable_member_retry	Boolean	Specifies whether to enable health check retries for backend servers. The value can be <b>true</b> (enable health check retries) or <b>false</b> (disable health check retries). The default value is <b>true</b> . Note: <ul style="list-style-type: none"><li>• If a shared load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li><li>• If a dedicated load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, <b>HTTPS</b>, or <b>QUIC</b>.</li></ul>

Parameter	Type	Description
keepalive_timeout	Integer	<p>Specifies the idle timeout duration, in seconds. If there are no requests reaching the load balancer after the idle timeout duration elapses, the load balancer will disconnect the connection with the client and establish a new connection when there is a new request.</p> <ul style="list-style-type: none"><li>For TCP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li><li>For HTTP and HTTPS listeners, the value ranges from <b>1</b> to <b>4000</b>, and the default value is <b>60</b>.</li><li>For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul>
client_timeout	Integer	<p>Specifies the timeout duration for waiting for a response from a client, in seconds. There are two situations:</p> <ul style="list-style-type: none"><li>If the client fails to send a request header to the load balancer within the timeout duration, the request will be interrupted.</li><li>If the interval between two consecutive request bodies reaching the load balancer is greater than the timeout duration, the connection will be disconnected.</li></ul> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>
member_timeout	Integer	<p>Specifies the timeout duration for waiting for a response from a backend server, in seconds. If the backend server fails to respond after the timeout duration elapses, the load balancer will stop waiting and return HTTP 504 Gateway Timeout to the client.</p> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>
ipgroup	<a href="#">ListenerIpGroup</a> object	Specifies the IP address group associated with the listener.
transparent_client_ip_enable	Boolean	Specifies whether to pass source IP addresses of the clients to backend servers.

Parameter	Type	Description
proxy_protocol_enable	Boolean	Specifies whether to enable the ProxyProtocol option to pass the source IP addresses of the clients to backend servers. This parameter is available only for TLS listeners and does not take effect for other types of listeners.
enhance_l7policy_enable	Boolean	<p>Specifies whether to enable advanced forwarding. If advanced forwarding is enabled, more flexible forwarding policies and rules are supported. The value can be <b>true</b> (enable advanced forwarding) or <b>false</b> (disable advanced forwarding), and the default value is <b>false</b>.</p> <p>The following scenarios are supported:</p> <ul style="list-style-type: none"><li>• <b>action</b> can be set to <b>REDIRECT_TO_URL</b> (requests will be redirected to another URL) or <b>Fixed_RESPONSE</b> (a fixed response body will be returned to clients).</li><li>• Parameters <b>priority</b>, <b>redirect_url_config</b>, and <b>fixed_response_config</b> can be specified in a forwarding policy.</li><li>• Parameter <b>type</b> can be set to <b>METHOD</b>, <b>HEADER</b>, <b>QUERY_STRING</b>, or <b>SOURCE_IP</b> for a forwarding rule.</li><li>• If <b>type</b> is set to <b>HOST_NAME</b> for a forwarding rule, the value parameter of the forwarding rule supports wildcard asterisks (*).</li><li>• The <b>conditions</b> parameter can be specified for forwarding rules.</li></ul> <p>Default: <b>false</b></p>

Parameter	Type	Description
quic_config	<a href="#">ListenerQuic Config</a> object	<p>Specifies the QUIC configuration for the current listener. This parameter is valid only when <b>protocol</b> is set to <b>HTTPS</b>.</p> <p>For TCP, UDP, HTTP, QUIC listeners, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b> The client sends a normal HTTP request that contains information indicating that the QUIC protocol is supported.</p> <p>If QUIC upgrade is enabled for the listeners, QUIC port and version information will be added to the response header.</p> <p>When the client sends both HTTPS and QUIC requests to the server, if the QUIC request is successfully sent, QUIC protocol will be used for subsequent communications.</p>

**Table 5-229** ListenerInsertHeaders

Parameter	Type	Description
X-Forwarded-ELB-IP	Boolean	Specifies whether to transparently transmit the load balancer EIP to backend servers. If <b>X-Forwarded-ELB-IP</b> is set to <b>true</b> , the load balancer EIP will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Port	Boolean	Specifies whether to transparently transmit the listening port of the load balancer to backend servers. If <b>X-Forwarded-Port</b> is set to <b>true</b> , the listening port of the load balancer will be stored in the HTTP header and passed to backend servers.
X-Forwarded-For-Port	Boolean	Specifies whether to transparently transmit the source port of the client to backend servers. If <b>X-Forwarded-For-Port</b> is set to <b>true</b> , the source port of the client will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Host	Boolean	Specifies whether to rewrite the <b>X-Forwarded-Host</b> header. If <b>X-Forwarded-Host</b> is set to <b>true</b> , <b>X-Forwarded-Host</b> in the request header from the clients can be set to <b>Host</b> in the request header sent from the load balancer to backend servers.

Parameter	Type	Description
X-Forwarded-Proto	Boolean	If <b>X-Forwarded-Proto</b> is set to <b>true</b> , the listener protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Real-IP	Boolean	If <b>X-Real-IP</b> is set to <b>true</b> , the source IP address of the client can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-ELB-ID	Boolean	If <b>X-Forwarded-ELB-ID</b> is set to <b>true</b> , the load balancer ID can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Certificate-ID	Boolean	If <b>X-Forwarded-TLS-Certificate-ID</b> is set to <b>true</b> , the certificate ID of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Protocol	Boolean	If <b>X-Forwarded-TLS-Protocol</b> is set to <b>true</b> , the algorithm protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Cipher	Boolean	If <b>X-Forwarded-TLS-Cipher</b> is set to <b>true</b> , the algorithm suite of the load balancer can be transferred to backend servers through the HTTP header of the packet.

**Table 5-230** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-231** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-232** ListenerIpGroup

Parameter	Type	Description
ipgroup_id	String	Specifies the ID of the IP address group associated with the listener.  This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.  The specified IP address group must exist, and the value cannot be <b>null</b> .
enable_ipgroup	Boolean	Specifies whether to enable access control. <ul style="list-style-type: none"><li>• <b>true</b>: Access control is enabled.</li><li>• <b>false</b>: Access control is disabled.</li></ul> A listener with access control enabled can be directly deleted.
type	String	Specifies how access to the listener is controlled. <ul style="list-style-type: none"><li>• <b>white</b>: A whitelist is configured. Only IP addresses in the whitelist can access the listener.</li><li>• <b>black</b>: A blacklist is configured. IP addresses in the blacklist are not allowed to access the listener.</li></ul>

**Table 5-233** ListenerQuicConfig

Parameter	Type	Description
quic_listener_id	String	Specifies the ID of the QUIC listener. This parameter is mandatory for creation and is optional for update. The specified <b>quic_listener_id</b> must exist. The listener protocol must be <b>QUIC</b> and cannot be set to <b>null</b> , otherwise, it will conflict with <b>enable_quic_upgrade</b> .
enable_quic_upgrade	Boolean	Specifies whether to enable QUIC upgrade. <b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.

## Example Requests

Viewing details of a listener

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/listeners/0b11747a-b139-492f-9692-2df0b1c87193
```



## Example Responses

**Status code: 200**

Successful request.

```
{
  "listener" : {
    "id" : "0b11747a-b139-492f-9692-2df0b1c87193",
    "name" : "My listener",
    "protocol_port" : 80,
    "protocol" : "TCP",
    "ipgroup" : null,
    "description" : "My listener update.",
    "default_tls_container_ref" : null,
    "admin_state_up" : true,
    "loadbalancers" : [ {
      "id" : "098b2f68-af1c-41a9-8efd-69958722af62"
    } ],
    "member_timeout" : null,
    "client_timeout" : null,
    "keepalive_timeout" : 300,
    "client_ca_tls_container_ref" : null,
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "sni_container_refs" : [ ],
    "connection_limit" : -1,
    "default_pool_id" : null,
    "tls_ciphers_policy" : "tls-1-0",
    "tags" : [ ],
    "created_at" : "2019-04-02T00:12:32Z",
    "updated_at" : "2019-04-02T17:43:46Z",
    "http2_enable" : true,
    "insert_headers" : {
      "X-Forwarded-ELB-IP" : true
    },
    "transparent_client_ip_enable" : false
  },
  "request_id" : "1394eb39-e4c8-4177-b96d-aaff569f1833"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.8.4 Updating a Listener

### Function

This API is used to update a listener.

## Constraints

If the provisioning status of the load balancer that the listener is added to is not **ACTIVE**, the listener cannot be updated.

## Calling Method

For details, see [Calling APIs](#).

## URI

PUT /v3/{project\_id}/elb/listeners/{listener\_id}

**Table 5-234** Path Parameters

Parameter	Mandatory	Type	Description
listener_id	Yes	String	Specifies the listener ID.
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-235** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-236** Request body parameters

Parameter	Mandatory	Type	Description
listener	Yes	<b>UpdateListenerOption</b> object	Request body for updating a listener

**Table 5-237** UpdateListenerOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the listener. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
client_ca_tls_container_ref	No	String	Specifies the ID of the CA certificate used by the listener. This parameter is available only when <b>type</b> is set to <b>client</b> .
default_pool_id	No	String	Specifies the ID of the default backend server group. If there is no matched forwarding policy, requests are forwarded to the default backend server. Minimum: <b>1</b> Maximum: <b>36</b>
default_tls_container_ref	No	String	Specifies the ID of the server certificate used by the listener. This parameter is available only when the listener's protocol is HTTPS and <b>type</b> is set to <b>server</b> .
description	No	String	Provides supplementary information about the listener. Minimum: <b>0</b> Maximum: <b>255</b>

Parameter	Mandatory	Type	Description
http2_enable	No	Boolean	<p>Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note:</p> <ul style="list-style-type: none"> <li>• This parameter is available only for HTTPS listeners.</li> <li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li> <li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li> </ul>
insert_headers	No	<a href="#">ListenerInsertHeaders</a> object	<p>Specifies the HTTP header fields that can transmit required information to backend servers. For example, the X-Forwarded-ELB-IP header field can transmit the EIP of the load balancer to backend servers.</p>
name	No	String	<p>Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note:</p> <ul style="list-style-type: none"> <li>• This parameter is available only for HTTPS listeners.</li> <li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li> <li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li> </ul> <p>Minimum: <b>0</b> Maximum: <b>255</b></p>

Parameter	Mandatory	Type	Description
sni_container_refs	No	Array of strings	Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener. Note: <ul style="list-style-type: none"><li>• The domain names of all SNI certificates must be unique.</li><li>• The total number of domain names of all SNI certificates cannot exceed 50.</li></ul>
sni_match_algo	No	String	Specifies how wildcard domain name matches with the SNI certificates used by the listener. <b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match. The default value is <b>wildcard</b> .
tls_ciphers_policy	No	String	Specifies the security policy used by the listener.
security_policy_id	No	String	Specifies the ID of the custom security policy. Minimum: <b>1</b> Maximum: <b>36</b>
enable_member_retry	No	Boolean	Specifies whether to enable health check retries for backend servers. The value can be <b>true</b> (enable health check retries) or <b>false</b> (disable health check retries). The default value is <b>true</b> . Note: <ul style="list-style-type: none"><li>• If a shared load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li><li>• If a dedicated load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, <b>HTTPS</b>, or <b>QUIC</b>.</li></ul>

Parameter	Mandatory	Type	Description
member_timeout	No	Integer	<p>Specifies the timeout duration for waiting for a response from a backend server, in seconds. If the backend server fails to respond after the timeout duration elapses, the load balancer will stop waiting and return HTTP 504 Gateway Timeout to the client.</p> <p>The value ranges from <b>1</b> to <b>300</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p> <p>Minimum: <b>1</b> Maximum: <b>300</b></p>
client_timeout	No	Integer	<p>Specifies the timeout duration for waiting for a response from a client, in seconds.</p> <p>This parameter is available only for HTTP and HTTPS listeners. The value ranges from <b>1</b> to <b>300</b>.</p> <p>Minimum: <b>1</b> Maximum: <b>300</b></p>
keepalive_timeout	No	Integer	<p>Specifies the idle timeout duration, in seconds. If there are no requests reaching the load balancer after the idle timeout duration elapses, the load balancer will disconnect the connection with the client and establish a new connection when there is a new request.</p> <ul style="list-style-type: none"><li>• For TCP listeners, the value ranges from <b>10</b> to <b>4000</b>.</li><li>• For HTTP and HTTPS listeners, the value ranges from <b>1</b> to <b>4000</b>.</li><li>• For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul>

Parameter	Mandatory	Type	Description
ipgroup	No	<a href="#">UpdateListenerIpGroupOption</a> object	Specifies the IP address group associated with the listener.
transparent_client_ip_enable	No	Boolean	Specifies whether to pass source IP addresses of the clients to backend servers.
proxy_protocol_enable	No	Boolean	Specifies whether to enable the ProxyProtocol option to pass the source IP addresses of the clients to backend servers. This parameter is available only for TLS listeners and does not take effect for other types of listeners.

Parameter	Mandatory	Type	Description
enhance_l7policy_enable	No	Boolean	<p>Specifies whether to enable advanced forwarding. If advanced forwarding is enabled, more flexible forwarding policies and rules are supported. The value can be <b>true</b> (enable advanced forwarding) or <b>false</b> (disable advanced forwarding), and the default value is <b>false</b>.</p> <p>The following scenarios are supported:</p> <ul style="list-style-type: none"><li>• <b>action</b> can be set to <b>REDIRECT_TO_URL</b> (requests will be redirected to another URL) or <b>Fixed_RESPONSE</b> (a fixed response body will be returned to clients).</li><li>• Parameters <b>priority</b>, <b>redirect_url_config</b>, and <b>fixed_response_config</b> can be specified in a forwarding policy.</li><li>• Parameter <b>type</b> can be set to <b>METHOD</b>, <b>HEADER</b>, <b>QUERY_STRING</b>, or <b>SOURCE_IP</b> for a forwarding rule.</li><li>• If <b>type</b> is set to <b>HOST_NAME</b> for a forwarding rule, the value parameter of the forwarding rule supports wildcard asterisks (*).</li><li>• The <b>conditions</b> parameter can be specified for forwarding rules.</li></ul> <p><b>NOTE</b> This function cannot be disabled after it is enabled.</p>



Parameter	Mandatory	Type	Description
quic_config	No	<a href="#">UpdateListenerQuicConfigOption</a> object	<p>Specifies the QUIC configuration for the current listener. This parameter is valid only when <b>protocol</b> is set to <b>HTTPS</b>.</p> <p>For TCP, UDP, HTTP, QUIC listeners, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b> The client sends a normal HTTP request that contains information indicating that the QUIC protocol is supported.</p> <p>If QUIC upgrade is enabled for the listeners, QUIC port and version information will be added to the response header.</p> <p>When the client sends both HTTPS and QUIC requests to the server, if the QUIC request is successfully sent, QUIC protocol will be used for subsequent communications.</p>

**Table 5-238** ListenerInsertHeaders

Parameter	Mandatory	Type	Description
X-Forwarded-ELB-IP	No	Boolean	Specifies whether to transparently transmit the load balancer EIP to backend servers. If <b>X-Forwarded-ELB-IP</b> is set to <b>true</b> , the load balancer EIP will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Port	No	Boolean	Specifies whether to transparently transmit the listening port of the load balancer to backend servers. If <b>X-Forwarded-Port</b> is set to <b>true</b> , the listening port of the load balancer will be stored in the HTTP header and passed to backend servers.

Parameter	Mandatory	Type	Description
X-Forwarded-For-Port	No	Boolean	Specifies whether to transparently transmit the source port of the client to backend servers. If <b>X-Forwarded-For-Port</b> is set to <b>true</b> , the source port of the client will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Host	No	Boolean	Specifies whether to rewrite the <b>X-Forwarded-Host</b> header. If <b>X-Forwarded-Host</b> is set to <b>true</b> , <b>X-Forwarded-Host</b> in the request header from the clients can be set to <b>Host</b> in the request header sent from the load balancer to backend servers.
X-Forwarded-Proto	No	Boolean	If <b>X-Forwarded-Proto</b> is set to <b>true</b> , the listener protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Real-IP	No	Boolean	If <b>X-Real-IP</b> is set to <b>true</b> , the source IP address of the client can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-ELB-ID	No	Boolean	If <b>X-Forwarded-ELB-ID</b> is set to <b>true</b> , the load balancer ID can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Certificate-ID	No	Boolean	If <b>X-Forwarded-TLS-Certificate-ID</b> is set to <b>true</b> , the certificate ID of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Protocol	No	Boolean	If <b>X-Forwarded-TLS-Protocol</b> is set to <b>true</b> , the algorithm protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.

Parameter	Mandatory	Type	Description
X-Forwarded-TLS-Cipher	No	Boolean	If <b>X-Forwarded-TLS-Cipher</b> is set to <b>true</b> , the algorithm suite of the load balancer can be transferred to backend servers through the HTTP header of the packet.

**Table 5-239** UpdateListenerIpGroupOption

Parameter	Mandatory	Type	Description
ipgroup_id	No	String	Specifies the ID of the IP address group associated with the listener.  This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.  The specified IP address group must exist, and the value cannot be <b>null</b> .  Minimum: <b>1</b> Maximum: <b>3600</b>
enable_ipgroup	No	Boolean	Specifies whether access control is enabled. <ul style="list-style-type: none"><li>● <b>true</b>: Access control is enabled.</li><li>● <b>false</b>: Access control is disabled.</li></ul> A listener with access control enabled can be directly deleted.
type	No	String	Specifies how access to the listener is controlled. <ul style="list-style-type: none"><li>● <b>white</b>: A whitelist is configured. Only IP addresses in the whitelist can access the listener.</li><li>● <b>black</b>: A blacklist is configured. IP addresses in the blacklist are not allowed to access the listener.</li></ul>

**Table 5-240** UpdateListenerQuicConfigOption

Parameter	Mandatory	Type	Description
quic_listener_id	No	String	Specifies the ID of the QUIC listener. Specifies the specified listener. The specified <b>quic_listener_id</b> must exist. The listener protocol must be <b>QUIC</b> and cannot be set to <b>null</b> , otherwise, it will conflict with <b>enable_quic_upgrade</b> .
enable_quic_upgrade	No	Boolean	Specifies whether to enable QUIC upgrade. <b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.

## Response Parameters

Status code: 200

**Table 5-241** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
listener	<b>Listener</b> object	Response body for adding a listener

**Table 5-242** Listener

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the listener. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
client_ca_tls_container_ref	String	Specifies the ID of the CA certificate used by the listener. This parameter is available only when <b>type</b> is set to <b>client</b> .

Parameter	Type	Description
connection_limit	Integer	Specifies the maximum number of connections that the load balancer can establish with backend servers. The value <b>-1</b> indicates that the number of connections is not limited.  This parameter is unsupported. Please do not use it.
created_at	String	Specifies the time when the listener was created, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.
default_pool_id	String	Specifies the ID of the default backend server group. If there is no matched forwarding policy, requests are forwarded to the default backend server.
default_tls_container_ref	String	Specifies the ID of the server certificate used by the listener.
description	String	Provides supplementary information about the listener.
http2_enable	Boolean	Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the listener. However, connections between the load balancer and backend servers still use HTTP/1.x by default. Note: <ul style="list-style-type: none"><li>• This parameter is available only for HTTPS listeners.</li><li>• You cannot configure this parameter for QUIC listeners, and the fixed value is <b>true</b>.</li><li>• If you configure this parameter for listeners with other protocols, it will not take effect.</li></ul>
id	String	Specifies the listener ID.
insert_headers	<a href="#">ListenerInsertHeaders</a> object	Specifies the HTTP header fields that can transmit required information to backend servers. For example, the X-Forwarded-ELB-IP header field can transmit the EIP of the load balancer to backend servers.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the ID of the load balancer that the listener is added to. A listener can be added to only one load balancer.
name	String	Specifies the listener name. Note: If you leave the listener name empty, you cannot locate it on the listener list and view its details.

Parameter	Type	Description
project_id	String	Specifies the ID of the project where the listener is used.
protocol	String	Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , <b>HTTPS</b> , <b>TERMINATED_HTTPS</b> , <b>QUIC</b> , or <b>TLS</b> . Note: <ul style="list-style-type: none"><li>• Protocol used by HTTPS listeners added to a shared load balancer can only be set to <b>TERMINATED_HTTPS</b>. If <b>HTTPS</b> is passed, the value will be automatically changed to <b>TERMINATED_HTTPS</b>.</li><li>• Protocol used by HTTPS listeners added to a dedicated load balancer can only be set to <b>HTTPS</b>. If <b>TERMINATED_HTTPS</b> is passed, the value will be automatically changed to <b>HTTPS</b>.</li></ul>
protocol_port	Integer	Specifies the port used by the listener. The QUIC listener port cannot be 4789 or the same as the UDP listener port. If this parameter is set to <b>0</b> , <b>port_ranges</b> is required. Minimum: <b>0</b> Maximum: <b>65535</b>
sni_container_refs	Array of strings	Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener. Note: <ul style="list-style-type: none"><li>• The domain names of all SNI certificates must be unique.</li><li>• The total number of domain names of all SNI certificates cannot exceed 50.</li></ul>
sni_match_algo	String	Specifies how wildcard domain name matches with the SNI certificates used by the listener. <b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match. The default value is <b>wildcard</b> .
tags	Array of <b>Tag</b> objects	Lists the tags.
updated_at	String	Specifies the time when the listener was updated, in the format of <i>yyyy-MM-dd"T"HH:mm:ss"Z"</i> , for example, 2021-07-30T12:03:44Z.

Parameter	Type	Description
tls_ciphers_policy	String	Specifies the security policy used by the listener.
security_policy_id	String	Specifies the ID of the custom security policy.
enable_member_retry	Boolean	Specifies whether to enable health check retries for backend servers. The value can be <b>true</b> (enable health check retries) or <b>false</b> (disable health check retries). The default value is <b>true</b> . Note: <ul style="list-style-type: none"><li>• If a shared load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li><li>• If a dedicated load balancer is associated, this parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, <b>HTTPS</b>, or <b>QUIC</b>.</li></ul>
keepalive_timeout	Integer	Specifies the idle timeout duration, in seconds. If there are no requests reaching the load balancer after the idle timeout duration elapses, the load balancer will disconnect the connection with the client and establish a new connection when there is a new request. <ul style="list-style-type: none"><li>• For TCP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li><li>• For HTTP and HTTPS listeners, the value ranges from <b>1</b> to <b>4000</b>, and the default value is <b>60</b>.</li><li>• For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul>
client_timeout	Integer	Specifies the timeout duration for waiting for a response from a client, in seconds. There are two situations: <ul style="list-style-type: none"><li>• If the client fails to send a request header to the load balancer within the timeout duration, the request will be interrupted.</li><li>• If the interval between two consecutive request bodies reaching the load balancer is greater than the timeout duration, the connection will be disconnected.</li></ul> The value ranges from <b>1</b> to <b>300</b> , and the default value is <b>60</b> . This parameter is available only for HTTP and HTTPS listeners.

Parameter	Type	Description
member_timeout	Integer	<p>Specifies the timeout duration for waiting for a response from a backend server, in seconds. If the backend server fails to respond after the timeout duration elapses, the load balancer will stop waiting and return HTTP 504 Gateway Timeout to the client.</p> <p>The value ranges from <b>1</b> to <b>300</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>
ipgroup	<a href="#">ListenerIpGroup</a> object	Specifies the IP address group associated with the listener.
transparent_client_ip_enable	Boolean	Specifies whether to pass source IP addresses of the clients to backend servers.
proxy_protocol_enable	Boolean	Specifies whether to enable the ProxyProtocol option to pass the source IP addresses of the clients to backend servers. This parameter is available only for TLS listeners and does not take effect for other types of listeners.
enhance_l7policy_enable	Boolean	<p>Specifies whether to enable advanced forwarding. If advanced forwarding is enabled, more flexible forwarding policies and rules are supported. The value can be <b>true</b> (enable advanced forwarding) or <b>false</b> (disable advanced forwarding), and the default value is <b>false</b>.</p> <p>The following scenarios are supported:</p> <ul style="list-style-type: none"> <li>• <b>action</b> can be set to <b>REDIRECT_TO_URL</b> (requests will be redirected to another URL) or <b>Fixed_RESPONSE</b> (a fixed response body will be returned to clients).</li> <li>• Parameters <b>priority</b>, <b>redirect_url_config</b>, and <b>fixed_response_config</b> can be specified in a forwarding policy.</li> <li>• Parameter <b>type</b> can be set to <b>METHOD</b>, <b>HEADER</b>, <b>QUERY_STRING</b>, or <b>SOURCE_IP</b> for a forwarding rule.</li> <li>• If <b>type</b> is set to <b>HOST_NAME</b> for a forwarding rule, the value parameter of the forwarding rule supports wildcard asterisks (*).</li> <li>• The <b>conditions</b> parameter can be specified for forwarding rules.</li> </ul> <p>Default: <b>false</b></p>



Parameter	Type	Description
quic_config	<a href="#">ListenerQuic Config</a> object	<p>Specifies the QUIC configuration for the current listener. This parameter is valid only when <b>protocol</b> is set to <b>HTTPS</b>.</p> <p>For TCP, UDP, HTTP, QUIC listeners, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b> The client sends a normal HTTP request that contains information indicating that the QUIC protocol is supported.</p> <p>If QUIC upgrade is enabled for the listeners, QUIC port and version information will be added to the response header.</p> <p>When the client sends both HTTPS and QUIC requests to the server, if the QUIC request is successfully sent, QUIC protocol will be used for subsequent communications.</p>

**Table 5-243** ListenerInsertHeaders

Parameter	Type	Description
X-Forwarded-ELB-IP	Boolean	Specifies whether to transparently transmit the load balancer EIP to backend servers. If <b>X-Forwarded-ELB-IP</b> is set to <b>true</b> , the load balancer EIP will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Port	Boolean	Specifies whether to transparently transmit the listening port of the load balancer to backend servers. If <b>X-Forwarded-Port</b> is set to <b>true</b> , the listening port of the load balancer will be stored in the HTTP header and passed to backend servers.
X-Forwarded-For-Port	Boolean	Specifies whether to transparently transmit the source port of the client to backend servers. If <b>X-Forwarded-For-Port</b> is set to <b>true</b> , the source port of the client will be stored in the HTTP header and passed to backend servers.
X-Forwarded-Host	Boolean	Specifies whether to rewrite the <b>X-Forwarded-Host</b> header. If <b>X-Forwarded-Host</b> is set to <b>true</b> , <b>X-Forwarded-Host</b> in the request header from the clients can be set to <b>Host</b> in the request header sent from the load balancer to backend servers.

Parameter	Type	Description
X-Forwarded-Proto	Boolean	If <b>X-Forwarded-Proto</b> is set to <b>true</b> , the listener protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Real-IP	Boolean	If <b>X-Real-IP</b> is set to <b>true</b> , the source IP address of the client can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-ELB-ID	Boolean	If <b>X-Forwarded-ELB-ID</b> is set to <b>true</b> , the load balancer ID can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Certificate-ID	Boolean	If <b>X-Forwarded-TLS-Certificate-ID</b> is set to <b>true</b> , the certificate ID of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Protocol	Boolean	If <b>X-Forwarded-TLS-Protocol</b> is set to <b>true</b> , the algorithm protocol of the load balancer can be transferred to backend servers through the HTTP header of the packet.
X-Forwarded-TLS-Cipher	Boolean	If <b>X-Forwarded-TLS-Cipher</b> is set to <b>true</b> , the algorithm suite of the load balancer can be transferred to backend servers through the HTTP header of the packet.

**Table 5-244** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-245** Tag

Parameter	Type	Description
key	String	Specifies the tag key. Minimum: <b>1</b> Maximum: <b>36</b>
value	String	Specifies the tag value. Minimum: <b>0</b> Maximum: <b>43</b>

**Table 5-246** ListenerIpGroup

Parameter	Type	Description
ipgroup_id	String	Specifies the ID of the IP address group associated with the listener.  This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.  The specified IP address group must exist, and the value cannot be <b>null</b> .
enable_ipgroup	Boolean	Specifies whether to enable access control. <ul style="list-style-type: none"><li>• <b>true</b>: Access control is enabled.</li><li>• <b>false</b>: Access control is disabled.</li></ul> A listener with access control enabled can be directly deleted.
type	String	Specifies how access to the listener is controlled. <ul style="list-style-type: none"><li>• <b>white</b>: A whitelist is configured. Only IP addresses in the whitelist can access the listener.</li><li>• <b>black</b>: A blacklist is configured. IP addresses in the blacklist are not allowed to access the listener.</li></ul>

**Table 5-247** ListenerQuicConfig

Parameter	Type	Description
quic_listener_id	String	Specifies the ID of the QUIC listener. This parameter is mandatory for creation and is optional for update. The specified <b>quic_listener_id</b> must exist. The listener protocol must be <b>QUIC</b> and cannot be set to <b>null</b> , otherwise, it will conflict with <b>enable_quic_upgrade</b> .
enable_quic_upgrade	Boolean	Specifies whether to enable QUIC upgrade. <b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.

## Example Requests

Modifying the name and description of a listener and enabling the HTTP/2 option

```
PUT https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/listeners/0b11747a-b139-492f-9692-2df0b1c87193
```

```
{
  "listener" : {
    "description" : "My listener update.",
    "name" : "My listener",
    "http2_enable" : true
  }
}
```

## Example Responses

### Status code: 200

Successful request.

```
{
  "listener" : {
    "id" : "0b11747a-b139-492f-9692-2df0b1c87193",
    "name" : "My listener",
    "protocol_port" : 80,
    "protocol" : "TCP",
    "description" : "My listener update.",
    "default_tls_container_ref" : null,
    "admin_state_up" : true,
    "loadbalancers" : [ {
      "id" : "098b2f68-af1c-41a9-8efd-69958722af62"
    } ],
    "member_timeout" : null,
    "client_timeout" : null,
    "keepalive_timeout" : 300,
    "client_ca_tls_container_ref" : null,
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "sni_container_refs" : [ ],
    "connection_limit" : -1,
    "default_pool_id" : null,
    "tls_ciphers_policy" : "tls-1-0",
    "tags" : [ ],
    "created_at" : "2019-04-02T00:12:32Z",
    "updated_at" : "2019-04-02T17:43:46Z",
    "http2_enable" : true,
    "ipgroup" : null,
    "insert_headers" : {
      "X-Forwarded-ELB-IP" : true
    },
    "transparent_client_ip_enable" : false
  },
  "request_id" : "5d56d89a-2271-4a75-8c02-804e3bc7b671"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.8.5 Deleting a Listener

### Function

This API is used to delete a listener.

### Constraints

Before you delete a listener, delete associated backend server groups or remove all backend servers in the default backend server group, and delete all forwarding policies.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/listeners/{listener\_id}

**Table 5-248** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.

### Request Parameters

**Table 5-249** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

None

### Example Requests

Deleting a listener

```
DELETE https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/listeners/0b11747a-b139-492f-9692-2df0b1c87193
```

## Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

# 5.9 Backend Server Group

## 5.9.1 Creating a Backend Server Group

### Function

This API is used to create a backend server group.

### Constraints

If **session-persistence** is specified, **cookie\_name** is available only when **type** is set to **APP\_COOKIE**.

If **listener\_id** is specified, the listener must have no backend server group associated.

### Calling Method

For details, see [Calling APIs](#).

### URI

POST /v3/{project\_id}/elb/pools

**Table 5-250** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-251** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-252** Request body parameters

Parameter	Mandatory	Type	Description
pool	Yes	<a href="#">CreatePoolOption</a> object	Specifies the request body for creating a backend server group.

**Table 5-253** CreatePoolOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the backend server group. The value can only be updated to <b>true</b> . This parameter is unsupported. Please do not use it.
description	No	String	Provides supplementary information about the backend server group. Minimum: <b>0</b> Maximum: <b>255</b>

Parameter	Mandatory	Type	Description
lb_algorithm	Yes	String	<p>Specifies the load balancing algorithm used by the load balancer to route requests to backend servers in the associated backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: weighted round robin</li> <li>● <b>LEAST_CONNECTIONS</b>: weighted least connections</li> <li>● <b>SOURCE_IP</b>: source IP hash</li> <li>● <b>QUIC_CID</b>: connection ID</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>● If the value is <b>SOURCE_IP</b>, the <b>weight</b> parameter will not take effect for backend servers.</li> <li>● <b>QUIC_CID</b> is supported only when the protocol of the backend server group is QUIC.</li> </ul>
listener_id	No	String	<p>Specifies the ID of the listener with which the backend server group is associated. Specify either <b>listener_id</b> or <b>loadbalancer_id</b>, or both of them.</p> <p>Specify either <b>listener_id</b> or <b>loadbalancer_id</b> for shared loadbalancer.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>
loadbalancer_id	No	String	<p>Specifies the ID of the load balancer with which the backend server group is associated. Specify either <b>listener_id</b> or <b>loadbalancer_id</b>, or both of them.</p> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>



Parameter	Mandatory	Type	Description
name	No	String	Specifies the backend server group name. Minimum: <b>0</b> Maximum: <b>255</b>
project_id	No	String	Specifies the project ID of the backend server group. Minimum: <b>32</b> Maximum: <b>32</b>
protocol	Yes	String	Specifies the protocol used by the backend server group to receive requests. The value can be <b>TCP</b> , <b>UDP</b> , <b>HTTP</b> , <b>HTTPS</b> , or <b>QUIC</b> . Note: <ul style="list-style-type: none"> <li>• If the listener's protocol is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b> or <b>QUIC</b>.</li> <li>• If the listener's protocol is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• If the listener's protocol is <b>HTTP</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> <li>• If the listener's protocol is <b>HTTPS</b>, the protocol of the backend server group can be <b>HTTP</b> or <b>HTTPS</b>.</li> <li>• If the listener's protocol is <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> <li>• If the backend server group protocol is <b>QUIC</b>, sticky session must be enabled with <b>type</b> set to <b>SOURCE_IP</b>.</li> </ul> Minimum: <b>1</b> Maximum: <b>255</b>
session_persistence	No	<a href="#">CreatePoolSessionPersistenceOption</a> object	Specifies the sticky session.

Parameter	Mandatory	Type	Description
slow_start	No	<a href="#">CreatePoolSlowStartOption</a> object	Specifies slow start details. After you enable slow start, new backend servers added to the backend server group are warmed up, and the number of requests they can receive increases linearly during the configured slow start duration. This parameter can be used when the protocol of the backend server group is HTTP or HTTPS. An error will be returned if the protocol is not HTTP or HTTPS.
member_deletion_protection_enable	No	Boolean	Specifies whether to enable deletion protection for the load balancer. <ul style="list-style-type: none"> <li><b>true</b>: Enable deletion protection.</li> <li><b>false</b> (default): Disable deletion protection.</li> </ul> <b>NOTE</b> Disable deletion protection for all your resources before deleting your account.
vpc_id	No	String	Specifies the ID of the VPC where the backend server group works. <p>Note:</p> <ul style="list-style-type: none"> <li>The backend server group must be associated with the VPC.</li> <li>Only backend servers in the VPC or IP as backend servers can be added.</li> <li><b>type</b> must be set to <b>instance</b>.</li> </ul> If <b>vpc_id</b> is not specified: <b>vpc_id</b> is determined by the VPC where the backend server works. Minimum: <b>0</b> Maximum: <b>36</b>

Parameter	Mandatory	Type	Description
type	No	String	<p>Specifies the type of the backend server group.</p> <p>Values:</p> <ul style="list-style-type: none"> <li>• <b>instance</b>: Any type of backend servers can be added. <b>vpc_id</b> is mandatory.</li> <li>• <b>ip</b>: Only IP as backend servers can be added. <b>vpc_id</b> cannot be specified.</li> <li>• <b>""</b>: Any type of backend servers can be added.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• If this parameter is not passed, any type of backend servers can be added. <b>type</b> will be returned as an empty string.</li> <li>• Specify one of <b>listener_id</b>, <b>loadbalancer_id</b>, or <b>type</b>. Shared load balancers can only be added to the backend server group with <b>loadbalancer_id</b> or <b>listener_id</b> specified.</li> </ul> <p>Minimum: <b>0</b> Maximum: <b>36</b></p>
ip_version	No	String	<p>Specifies the IP address version supported by the backend server group.</p> <ul style="list-style-type: none"> <li>• Shared load balancers: The value is fixed at <b>v4</b>.</li> <li>• Dedicated load balancers: The value can be <b>dualstack</b>, <b>v6</b>, or <b>v4</b>. If the protocol of the backend server group is TCP or UDP, the value is <b>dualstack</b>. If the protocol of the backend server group is HTTP, the value is <b>v4</b>.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>20</b></p>

Parameter	Mandatory	Type	Description
pool_health	No	<b>PoolHealth</b> object	Specifies the configurations of the pool health feature.

**Table 5-254** CreatePoolSessionPersistenceOption

Parameter	Mandatory	Type	Description
cookie_name	No	String	<p>Specifies the cookie name.</p> <p>For shared load balancers, the name can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-).</p> <p>For dedicated load balancers, the name can contain a maximum of 255 characters, including letters, digits, underscores (_), hyphens (-), and periods (.).</p> <p>Note:</p> <p>This parameter will take effect only when <b>type</b> is set to <b>APP_COOKIE</b>. Otherwise, an error will be returned.</p>
type	Yes	String	<p>Specifies the sticky session type. The value can be <b>SOURCE_IP</b>, <b>HTTP_COOKIE</b>, or <b>APP_COOKIE</b>.Note:</p> <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b> or <b>UDP</b>, only <b>SOURCE_IP</b> takes effect.</li><li>• For dedicated load balancers, if the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value can be <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b>.</li><li>• If the backend server group protocol is <b>QUIC</b>, sticky session must be enabled with <b>type</b> set to <b>SOURCE_IP</b>.</li></ul>

Parameter	Mandatory	Type	Description
persistence_timeout	No	Integer	<p>Specifies the stickiness duration, in minutes. This parameter will not take effect when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <ul style="list-style-type: none"><li>• If the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>, and the default value is <b>1</b>.</li><li>• If the protocol of the backend server group is HTTP or HTTPS, the value ranges from <b>1</b> to <b>1440</b>, and the default value is <b>1440</b>.</li></ul>

**Table 5-255** CreatePoolSlowStartOption

Parameter	Mandatory	Type	Description
enable	No	Boolean	<p>Specifies whether to enable slow start.</p> <ul style="list-style-type: none"><li>• <b>true</b>: Enable slow start.</li><li>• <b>false</b>: Disable slow start.</li></ul> <p>Default: <b>false</b></p>
duration	No	Integer	<p>Specifies the slow start duration, in seconds.</p> <p>The value ranges from <b>30</b> to <b>1200</b>, and the default value is <b>30</b>.</p> <p>Minimum: <b>30</b> Maximum: <b>1200</b> Default: <b>30</b></p>

**Table 5-256** PoolHealth

Parameter	Mandatory	Type	Description
minimum_healthy_member_count	No	Integer	If the number of healthy backend servers is less than the value specified for this parameter, the backend server group is considered as unhealthy. The value can be <b>0</b> (disabled) or <b>1</b> (enabled).

## Response Parameters

Status code: 201

**Table 5-257** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
pool	<b>Pool</b> object	Specifies the backend server group.

**Table 5-258** Pool

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the backend server group. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
description	String	Provides supplementary information about the backend server group.
healthmonitor_id	String	Specifies the ID of the health check configured for the backend server group.
id	String	Specifies the backend server group ID.

Parameter	Type	Description
lb_algorithm	String	<p>Specifies the load balancing algorithm used by the load balancer to route requests to backend servers in the associated backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: weighted round robin</li> <li>● <b>LEAST_CONNECTIONS</b>: weighted least connections</li> <li>● <b>SOURCE_IP</b>: source IP hash</li> <li>● <b>QUIC_CID</b>: connection ID</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>● If the value is <b>SOURCE_IP</b>, the <b>weight</b> parameter will not take effect for backend servers.</li> <li>● <b>QUIC_CID</b> is supported only when the protocol of the backend server group is QUIC.</li> </ul>
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the IDs of the listeners with which the backend server group is associated.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the IDs of the load balancers with which the backend server group is associated.
members	Array of <a href="#">MemberRef</a> objects	Specifies the IDs of the backend servers in the backend server group.
name	String	Specifies the backend server group name.
project_id	String	Specifies the project ID.

Parameter	Type	Description
protocol	String	<p>Specifies the protocol used by the backend server group to receive requests. The value can be <b>TCP</b>, <b>UDP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>QUIC</b>, or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• If the listener's protocol is UDP, the protocol of the backend server group must be UDP or QUIC.</li><li>• If the listener's protocol is TCP, the protocol of the backend server group must be TCP.</li><li>• If the listener's protocol is HTTP, the protocol of the backend server group must be HTTP.</li><li>• If the listener's protocol is HTTPS, the protocol of the backend server group can be HTTP or HTTPS.</li><li>• If the listener's protocol is <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be HTTP.</li><li>• If the protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be enabled and <b>type</b> must be set to <b>SOURCE_IP</b>.</li></ul>
session_persistence	<b>SessionPersistence</b> object	Specifies the sticky session.
ip_version	String	<p>Specifies the IP address version supported by the backend server group.</p> <ul style="list-style-type: none"><li>• Shared load balancers: The value is fixed at <b>v4</b>.</li><li>• Dedicated load balancers: The value can be <b>dualstack</b> or <b>v4</b>. If the protocol of the backend server group is TCP, UDP, or QUIC, the value is <b>dualstack</b>. If the protocol of the backend server group is HTTP or HTTPS, the value is <b>v4</b>.</li></ul>
slow_start	<b>SlowStart</b> object	<p>Specifies slow start details. After you enable slow start, new backend servers added to the backend server group are warmed up, and the number of requests they can receive increases linearly during the configured slow start duration.</p> <p>This parameter can be used when the protocol of the backend server group is HTTP or HTTPS. An error will be returned if the protocol is not HTTP or HTTPS.</p>



Parameter	Type	Description
member_deletion_protection_enable	Boolean	Specifies whether to enable deletion protection. <ul style="list-style-type: none"><li>● <b>true</b>: Enable deletion protection.</li><li>● <b>false</b>: Disable deletion protection.</li></ul> <b>NOTE</b> Disable deletion protection for all your resources before deleting your account.
created_at	String	Specifies the time when a backend server group was created. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when when a backend server group was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
vpc_id	String	Specifies the ID of the VPC where the backend server group works.
type	String	Specifies the type of the backend server group. Values: <ul style="list-style-type: none"><li>● <b>instance</b>: Any type of backend servers can be added. <b>vpc_id</b> is mandatory.</li><li>● <b>ip</b>: Only IP as backend servers can be added. <b>vpc_id</b> cannot be specified.</li><li>● <b>""</b>: Any type of backend servers can be added.</li></ul>
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
pool_health	<b>PoolHealth</b> object	Specifies the configurations of the pool health feature.

**Table 5-259** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-260** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-261** MemberRef

Parameter	Type	Description
id	String	Specifies the backend server ID.

**Table 5-262** SessionPersistence

Parameter	Type	Description
cookie_name	String	<p>Specifies the cookie name.</p> <p>For shared load balancers, the name can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-).</p> <p>For dedicated load balancers, the name can contain a maximum of 255 characters, including letters, digits, underscores (_), hyphens (-), and periods (.).</p> <p>Note:</p> <p>This parameter will take effect only when <b>type</b> is set to <b>APP_COOKIE</b>. Otherwise, an error will be returned.</p>

Parameter	Type	Description
type	String	Specifies the sticky session type. The value can be <b>SOURCE_IP</b> , <b>HTTP_COOKIE</b> , or <b>APP_COOKIE</b> . Note: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b> or <b>UDP</b>, only <b>SOURCE_IP</b> takes effect.</li><li>• For dedicated load balancers, if the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value can only be <b>HTTP_COOKIE</b>.</li><li>• If the backend server group protocol is <b>QUIC</b>, sticky session must be enabled with <b>type</b> set to <b>SOURCE_IP</b>.</li></ul>
persistence_timeout	Integer	Specifies the stickiness duration, in minutes. This parameter will not take effect when <b>type</b> is set to <b>APP_COOKIE</b> . <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b>, <b>UDP</b>, or <b>QUIC</b>, the value ranges from <b>1</b> to <b>60</b>, and the default value is <b>1</b>.</li><li>• If the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value ranges from <b>1</b> to <b>1440</b>, and the default value is <b>1440</b>.</li></ul>

Table 5-263 SlowStart

Parameter	Type	Description
enable	Boolean	Specifies whether to enable slow start. <ul style="list-style-type: none"><li>• <b>true</b>: Enable slow start.</li><li>• <b>false</b>: Disable slow start.</li></ul> Default: <b>false</b>
duration	Integer	Specifies the slow start duration, in seconds. The value ranges from <b>30</b> to <b>1200</b> , and the default value is <b>30</b> . Minimum: <b>30</b> Maximum: <b>1200</b> Default: <b>30</b>

**Table 5-264** PoolHealth

Parameter	Type	Description
minimum_healthy_member_count	Integer	If the number of healthy backend servers is less than the value specified for this parameter, the backend server group is considered as unhealthy. The value can be <b>0</b> (disabled) or <b>1</b> (enabled).

## Example Requests

- Creating a backend server group whose backend protocol is HTTP

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools
```

```
{
  "pool" : {
    "name" : "My pool",
    "lb_algorithm" : "LEAST_CONNECTIONS",
    "listener_id" : "0b11747a-b139-492f-9692-2df0b1c87193",
    "protocol" : "TCP",
    "member_deletion_protection_enable" : false
  }
}
```

- Creating a backend server group whose backend protocol is TCP

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools
```

```
{
  "pool" : {
    "name" : "My pool",
    "lb_algorithm" : "LEAST_CONNECTIONS",
    "listener_id" : "0b11747a-b139-492f-9692-2df0b1c87193",
    "protocol" : "HTTP",
    "slow_start" : {
      "enable" : true,
      "duration" : 50
    },
    "member_deletion_protection_enable" : false
  }
}
```

## Example Responses

### Status code: 201

Normal response to POST requests.

```
{
  "pool" : {
    "type" : "",
    "vpc_id" : "",
    "lb_algorithm" : "LEAST_CONNECTIONS",
    "protocol" : "TCP",
    "description" : "",
    "admin_state_up" : true,
    "member_deletion_protection_enable" : false,
    "loadbalancers" : [ {
      "id" : "098b2f68-af1c-41a9-8efd-69958722af62"
    } ],
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "session_persistence" : null,
    "healthmonitor_id" : null,
  }
}
```

```
"listeners" : [ {  
  "id" : "0b11747a-b139-492f-9692-2df0b1c87193"  
} ],  
"members" : [ ],  
"id" : "36ce7086-a496-4666-9064-5ba0e6840c75",  
"name" : "My pool",  
"ip_version" : "v4",  
"slow_start" : null  
},  
"request_id" : "2d974978-0733-404d-a21a-b29204f4803a"  
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.9.2 Querying Backend Server Groups

### Function

This API is used to query all backend server groups.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/pools

**Table 5-265** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-266** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If this parameter is not specified, the first page will be queried.</li><li>• This parameter cannot be left blank or set to an invalid ID.</li></ul>
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>
description	No	Array	Provides supplementary information about the backend server group. Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xx</i> .

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the backend server group. This parameter is unsupported. Please do not use it.
healthmonitor_id	No	Array	Specifies the ID of the health check configured for the backend server group. Multiple IDs can be queried in the format of <i>healthmonitor_id=xxx&amp;healthmonitor_id=xxx</i> .
id	No	Array	Specifies the ID of the backend server group. Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .
name	No	Array	Specifies the backend server group name. Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .
loadbalancer_id	No	Array	Specifies the ID of the load balancer with which the backend server group is associated. Multiple IDs can be queried in the format of <i>loadbalancer_id=xxx&amp;loadbalancer_id=xxx</i> .
protocol	No	Array	Specifies the protocol used by the backend server group to receive requests from the load balancer. The value can be <b>TCP, UDP, HTTP, HTTPS, QUIC, or TLS</b> . Multiple protocols can be queried in the format of <i>protocol=xxx&amp;protocol=xxx</i> .

Parameter	Mandatory	Type	Description
lb_algorithm	No	Array	<p>Specifies the load balancing algorithm used by the load balancer to route requests to backend servers in the associated backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: weighted round robin</li> <li>● <b>LEAST_CONNECTIONS</b>: weighted least connections</li> <li>● <b>SOURCE_IP</b>: source IP hash</li> <li>● <b>QUIC_CID</b>: connection ID</li> </ul> <p>Multiple algorithms can be queried in the format of <i>lb_algorithm=xxx&amp;lb_algorithm=xxx</i>.</p>
enterprise_project_id	No	Array	<p>Specifies the enterprise project ID.</p> <ul style="list-style-type: none"> <li>● If this parameter is not passed, resources in the default enterprise project are queried, and authentication is performed based on the default enterprise project.</li> <li>● If this parameter is passed, its value can be the ID of an existing enterprise project (resources in the specific enterprise project are required) or <b>all_granted_eps</b> (resources in all enterprise projects are queried).</li> </ul> <p>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i>.</p>
ip_version	No	Array	<p>Specifies the IP address version supported by the backend server group.</p> <p>Multiple versions can be queried in the format of <i>ip_version=xxx&amp;ip_version=xxx</i>.</p>



Parameter	Mandatory	Type	Description
member_address	No	Array	Specifies the private IP address bound to the backend server. This is a query parameter and will not be included in the response. Multiple IP addresses can be queried in the format of <i>member_address=xxx&amp;member_address=xxx</i> .
member_device_id	No	Array	Specifies the ID of the cloud server that serves as a backend server. This parameter is used only as a query condition and is not included in the response. Multiple IDs can be queried in the format of <i>member_device_id=xxx&amp;member_device_id=xxx</i> .
member_deletion_protection_enable	No	Boolean	Specifies whether to enable deletion protection. <ul style="list-style-type: none"><li>• <b>true</b>: Enable deletion protection.</li><li>• <b>false</b>: Disable deletion protection.</li></ul>
listener_id	No	Array	Specifies the IDs of the associated listeners, including the listeners associated through forwarding policies. Multiple IDs can be queried in the format of <i>listener_id=xxx&amp;listener_id=xxx</i> .
member_instance_id	No	Array	Specifies the backend server ID. This parameter is used only as a query condition and is not included in the response. Multiple IDs can be queried in the format of <i>member_instance_id=xxx&amp;member_instance_id=xxx</i> .
vpc_id	No	Array	Specifies the ID of the VPC where the backend server group works.

Parameter	Mandatory	Type	Description
type	No	Array	Specifies the type of the backend server group. Values: <ul style="list-style-type: none"> <li>• <b>instance</b>: Any type of backend servers can be added. <b>vpc_id</b> is mandatory.</li> <li>• <b>ip</b>: Only IP as backend servers can be added. <b>vpc_id</b> cannot be specified.</li> <li>• <b>""</b>: Any type of backend servers can be added.</li> </ul>
pool_health	No	String	This API is used to query whether <b>pool_health</b> is enabled. If <b>minimum_healthy_member_count</b> is <b>0</b> , <b>pool_health</b> is disabled. If <b>minimum_healthy_member_count</b> is <b>1</b> , <b>pool_health</b> is enabled.

## Request Parameters

Table 5-267 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

Table 5-268 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<a href="#">PageInfo</a> object	Shows pagination information.

Parameter	Type	Description
pools	Array of <b>Pool</b> objects	Lists the backend server groups.

**Table 5-269** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

**Table 5-270** Pool

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the backend server group. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
description	String	Provides supplementary information about the backend server group.
healthmonitor_id	String	Specifies the ID of the health check configured for the backend server group.
id	String	Specifies the backend server group ID.

Parameter	Type	Description
lb_algorithm	String	<p>Specifies the load balancing algorithm used by the load balancer to route requests to backend servers in the associated backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: weighted round robin</li> <li>● <b>LEAST_CONNECTIONS</b>: weighted least connections</li> <li>● <b>SOURCE_IP</b>: source IP hash</li> <li>● <b>QUIC_CID</b>: connection ID</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>● If the value is <b>SOURCE_IP</b>, the <b>weight</b> parameter will not take effect for backend servers.</li> <li>● <b>QUIC_CID</b> is supported only when the protocol of the backend server group is QUIC.</li> </ul>
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the IDs of the listeners with which the backend server group is associated.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the IDs of the load balancers with which the backend server group is associated.
members	Array of <a href="#">MemberRef</a> objects	Specifies the IDs of the backend servers in the backend server group.
name	String	Specifies the backend server group name.
project_id	String	Specifies the project ID.

Parameter	Type	Description
protocol	String	<p>Specifies the protocol used by the backend server group to receive requests. The value can be <b>TCP</b>, <b>UDP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>QUIC</b>, or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the listener's protocol is UDP, the protocol of the backend server group must be UDP or QUIC.</li> <li>• If the listener's protocol is TCP, the protocol of the backend server group must be TCP.</li> <li>• If the listener's protocol is HTTP, the protocol of the backend server group must be HTTP.</li> <li>• If the listener's protocol is HTTPS, the protocol of the backend server group can be HTTP or HTTPS.</li> <li>• If the listener's protocol is <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be HTTP.</li> <li>• If the protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be enabled and <b>type</b> must be set to <b>SOURCE_IP</b>.</li> </ul>
session_persistence	<b>SessionPersistence</b> object	Specifies the sticky session.
ip_version	String	<p>Specifies the IP address version supported by the backend server group.</p> <ul style="list-style-type: none"> <li>• Shared load balancers: The value is fixed at <b>v4</b>.</li> <li>• Dedicated load balancers: The value can be <b>dualstack</b> or <b>v4</b>. If the protocol of the backend server group is TCP, UDP, or QUIC, the value is <b>dualstack</b>. If the protocol of the backend server group is HTTP or HTTPS, the value is <b>v4</b>.</li> </ul>
slow_start	<b>SlowStart</b> object	<p>Specifies slow start details. After you enable slow start, new backend servers added to the backend server group are warmed up, and the number of requests they can receive increases linearly during the configured slow start duration.</p> <p>This parameter can be used when the protocol of the backend server group is HTTP or HTTPS. An error will be returned if the protocol is not HTTP or HTTPS.</p>

Parameter	Type	Description
member_deletion_protection_enable	Boolean	Specifies whether to enable deletion protection. <ul style="list-style-type: none"><li>● <b>true</b>: Enable deletion protection.</li><li>● <b>false</b>: Disable deletion protection.</li></ul> <b>NOTE</b> Disable deletion protection for all your resources before deleting your account.
created_at	String	Specifies the time when a backend server group was created. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when when a backend server group was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
vpc_id	String	Specifies the ID of the VPC where the backend server group works.
type	String	Specifies the type of the backend server group. Values: <ul style="list-style-type: none"><li>● <b>instance</b>: Any type of backend servers can be added. <b>vpc_id</b> is mandatory.</li><li>● <b>ip</b>: Only IP as backend servers can be added. <b>vpc_id</b> cannot be specified.</li><li>● <b>""</b>: Any type of backend servers can be added.</li></ul>
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
pool_health	<b>PoolHealth</b> object	Specifies the configurations of the pool health feature.

**Table 5-271** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-272** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-273** MemberRef

Parameter	Type	Description
id	String	Specifies the backend server ID.

**Table 5-274** SessionPersistence

Parameter	Type	Description
cookie_name	String	<p>Specifies the cookie name.</p> <p>For shared load balancers, the name can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-).</p> <p>For dedicated load balancers, the name can contain a maximum of 255 characters, including letters, digits, underscores (_), hyphens (-), and periods (.).</p> <p>Note:</p> <p>This parameter will take effect only when <b>type</b> is set to <b>APP_COOKIE</b>. Otherwise, an error will be returned.</p>

Parameter	Type	Description
type	String	Specifies the sticky session type. The value can be <b>SOURCE_IP</b> , <b>HTTP_COOKIE</b> , or <b>APP_COOKIE</b> . Note: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b> or <b>UDP</b>, only <b>SOURCE_IP</b> takes effect.</li><li>• For dedicated load balancers, if the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value can only be <b>HTTP_COOKIE</b>.</li><li>• If the backend server group protocol is <b>QUIC</b>, sticky session must be enabled with <b>type</b> set to <b>SOURCE_IP</b>.</li></ul>
persistence_timeout	Integer	Specifies the stickiness duration, in minutes. This parameter will not take effect when <b>type</b> is set to <b>APP_COOKIE</b> . <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b>, <b>UDP</b>, or <b>QUIC</b>, the value ranges from <b>1</b> to <b>60</b>, and the default value is <b>1</b>.</li><li>• If the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value ranges from <b>1</b> to <b>1440</b>, and the default value is <b>1440</b>.</li></ul>

Table 5-275 SlowStart

Parameter	Type	Description
enable	Boolean	Specifies whether to enable slow start. <ul style="list-style-type: none"><li>• <b>true</b>: Enable slow start.</li><li>• <b>false</b>: Disable slow start.</li></ul> Default: <b>false</b>
duration	Integer	Specifies the slow start duration, in seconds. The value ranges from <b>30</b> to <b>1200</b> , and the default value is <b>30</b> . Minimum: <b>30</b> Maximum: <b>1200</b> Default: <b>30</b>



**Table 5-276** PoolHealth

Parameter	Type	Description
minimum_healthy_member_count	Integer	If the number of healthy backend servers is less than the value specified for this parameter, the backend server group is considered as unhealthy. The value can be <b>0</b> (disabled) or <b>1</b> (enabled).

## Example Requests

Querying backend server groups

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools?limit=2
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "pools": [ {
    "lb_algorithm": "ROUND_ROBIN",
    "protocol": "HTTP",
    "type": "",
    "vpc_id": "",
    "description": "",
    "admin_state_up": true,
    "member_deletion_protection_enable": false,
    "loadbalancers": [ {
      "id": "309a0f61-0b62-45f2-97d1-742f3434338e"
    } ],
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "session_persistence": {
      "cookie_name": "my_cookie",
      "type": "APP_COOKIE",
      "persistence_timeout": 1
    },
    "healthmonitor_id": "",
    "listeners": [ ],
    "members": [ ],
    "id": "73bd4fe0-ffbb-4b56-aab4-4f26ddf7a103",
    "name": "",
    "ip_version": "v4",
    "pool_health": {
      "minimum_healthy_member_count": 0
    }
  }, {
    "lb_algorithm": "SOURCE_IP",
    "protocol": "TCP",
    "description": "",
    "admin_state_up": true,
    "member_deletion_protection_enable": false,
    "loadbalancers": [ {
      "id": "d9763e59-64b7-4e93-aec7-0ff7881ef9bc"
    } ],
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "session_persistence": {
      "cookie_name": "",
      "type": "SOURCE_IP",
      "persistence_timeout": 1
    }
  } ]
}
```

```
    },
    "healthmonitor_id" : "",
    "listeners" : [ {
      "id" : "8d21db6f-b475-429e-a9cb-90439b0413b2"
    } ],
    "members" : [ ],
    "id" : "74db02d1-5711-4c77-b383-a450e2b93142",
    "name" : "pool_tcp_001",
    "ip_version" : "dualstack",
    "pool_health" : {
      "minimum_healthy_member_count" : 0
    }
  } ],
  "page_info" : {
    "next_marker" : "74db02d1-5711-4c77-b383-a450e2b93142",
    "previous_marker" : "73bd4fe0-ffbb-4b56-aab4-4f26ddf7a103",
    "current_count" : 2
  },
  "request_id" : "a1a7e852-1928-48f7-bbc9-ca8469898713"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.9.3 Viewing Details of a Backend Server Group

### Function

This API is used to view details of a backend server group.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/pools/{pool\_id}

**Table 5-277** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
pool_id	Yes	String	Specifies the ID of the backend server group.

## Request Parameters

Table 5-278 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

Table 5-279 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
pool	<a href="#">Pool</a> object	Specifies the backend server group.

Table 5-280 Pool

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the backend server group. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
description	String	Provides supplementary information about the backend server group.
healthmonitor_id	String	Specifies the ID of the health check configured for the backend server group.
id	String	Specifies the backend server group ID.

Parameter	Type	Description
lb_algorithm	String	<p>Specifies the load balancing algorithm used by the load balancer to route requests to backend servers in the associated backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>● <b>ROUND_ROBIN</b>: weighted round robin</li><li>● <b>LEAST_CONNECTIONS</b>: weighted least connections</li><li>● <b>SOURCE_IP</b>: source IP hash</li><li>● <b>QUIC_CID</b>: connection ID</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>● If the value is <b>SOURCE_IP</b>, the <b>weight</b> parameter will not take effect for backend servers.</li><li>● <b>QUIC_CID</b> is supported only when the protocol of the backend server group is QUIC.</li></ul>
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the IDs of the listeners with which the backend server group is associated.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the IDs of the load balancers with which the backend server group is associated.
members	Array of <a href="#">MemberRef</a> objects	Specifies the IDs of the backend servers in the backend server group.
name	String	Specifies the backend server group name.
project_id	String	Specifies the project ID.

Parameter	Type	Description
protocol	String	<p>Specifies the protocol used by the backend server group to receive requests. The value can be <b>TCP</b>, <b>UDP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>QUIC</b>, or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the listener's protocol is UDP, the protocol of the backend server group must be UDP or QUIC.</li> <li>• If the listener's protocol is TCP, the protocol of the backend server group must be TCP.</li> <li>• If the listener's protocol is HTTP, the protocol of the backend server group must be HTTP.</li> <li>• If the listener's protocol is HTTPS, the protocol of the backend server group can be HTTP or HTTPS.</li> <li>• If the listener's protocol is <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be HTTP.</li> <li>• If the protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be enabled and <b>type</b> must be set to <b>SOURCE_IP</b>.</li> </ul>
session_persistence	<b>SessionPersistence</b> object	Specifies the sticky session.
ip_version	String	<p>Specifies the IP address version supported by the backend server group.</p> <ul style="list-style-type: none"> <li>• Shared load balancers: The value is fixed at <b>v4</b>.</li> <li>• Dedicated load balancers: The value can be <b>dualstack</b> or <b>v4</b>. If the protocol of the backend server group is TCP, UDP, or QUIC, the value is <b>dualstack</b>. If the protocol of the backend server group is HTTP or HTTPS, the value is <b>v4</b>.</li> </ul>
slow_start	<b>SlowStart</b> object	<p>Specifies slow start details. After you enable slow start, new backend servers added to the backend server group are warmed up, and the number of requests they can receive increases linearly during the configured slow start duration.</p> <p>This parameter can be used when the protocol of the backend server group is HTTP or HTTPS. An error will be returned if the protocol is not HTTP or HTTPS.</p>

Parameter	Type	Description
member_deletion_protection_enable	Boolean	Specifies whether to enable deletion protection. <ul style="list-style-type: none"><li>● <b>true</b>: Enable deletion protection.</li><li>● <b>false</b>: Disable deletion protection.</li></ul> <b>NOTE</b> Disable deletion protection for all your resources before deleting your account.
created_at	String	Specifies the time when a backend server group was created. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when when a backend server group was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
vpc_id	String	Specifies the ID of the VPC where the backend server group works.
type	String	Specifies the type of the backend server group. Values: <ul style="list-style-type: none"><li>● <b>instance</b>: Any type of backend servers can be added. <b>vpc_id</b> is mandatory.</li><li>● <b>ip</b>: Only IP as backend servers can be added. <b>vpc_id</b> cannot be specified.</li><li>● <b>""</b>: Any type of backend servers can be added.</li></ul>
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
pool_health	<b>PoolHealth</b> object	Specifies the configurations of the pool health feature.

**Table 5-281** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-282** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-283** MemberRef

Parameter	Type	Description
id	String	Specifies the backend server ID.

**Table 5-284** SessionPersistence

Parameter	Type	Description
cookie_name	String	<p>Specifies the cookie name.</p> <p>For shared load balancers, the name can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-).</p> <p>For dedicated load balancers, the name can contain a maximum of 255 characters, including letters, digits, underscores (_), hyphens (-), and periods (.).</p> <p>Note:</p> <p>This parameter will take effect only when <b>type</b> is set to <b>APP_COOKIE</b>. Otherwise, an error will be returned.</p>

Parameter	Type	Description
type	String	Specifies the sticky session type. The value can be <b>SOURCE_IP</b> , <b>HTTP_COOKIE</b> , or <b>APP_COOKIE</b> .Note: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b> or <b>UDP</b>, only <b>SOURCE_IP</b> takes effect.</li><li>• For dedicated load balancers, if the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value can only be <b>HTTP_COOKIE</b>.</li><li>• If the backend server group protocol is <b>QUIC</b>, sticky session must be enabled with <b>type</b> set to <b>SOURCE_IP</b>.</li></ul>
persistence_timeout	Integer	Specifies the stickiness duration, in minutes. This parameter will not take effect when <b>type</b> is set to <b>APP_COOKIE</b> . <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b>, <b>UDP</b>, or <b>QUIC</b>, the value ranges from <b>1</b> to <b>60</b>, and the default value is <b>1</b>.</li><li>• If the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value ranges from <b>1</b> to <b>1440</b>, and the default value is <b>1440</b>.</li></ul>

Table 5-285 SlowStart

Parameter	Type	Description
enable	Boolean	Specifies whether to enable slow start. <ul style="list-style-type: none"><li>• <b>true</b>: Enable slow start.</li><li>• <b>false</b>: Disable slow start.</li></ul> Default: <b>false</b>
duration	Integer	Specifies the slow start duration, in seconds. The value ranges from <b>30</b> to <b>1200</b> , and the default value is <b>30</b> . Minimum: <b>30</b> Maximum: <b>1200</b> Default: <b>30</b>



**Table 5-286** PoolHealth

Parameter	Type	Description
minimum_healthy_member_count	Integer	If the number of healthy backend servers is less than the value specified for this parameter, the backend server group is considered as unhealthy. The value can be <b>0</b> (disabled) or <b>1</b> (enabled).

## Example Requests

Querying details of a backend server group

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "pool" : {
    "type" : "",
    "vpc_id" : "",
    "lb_algorithm" : "LEAST_CONNECTIONS",
    "protocol" : "TCP",
    "description" : "My pool",
    "admin_state_up" : true,
    "member_deletion_protection_enable" : false,
    "loadbalancers" : [ {
      "id" : "098b2f68-af1c-41a9-8efd-69958722af62"
    } ],
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "session_persistence" : null,
    "healthmonitor_id" : "",
    "listeners" : [ {
      "id" : "0b11747a-b139-492f-9692-2df0b1c87193"
    }, {
      "id" : "61942790-2367-482a-8b0e-93840ea2a1c6"
    }, {
      "id" : "fd8f954c-f0f8-4d39-bb1d-41637cd6b1be"
    } ],
    "members" : [ ],
    "id" : "36ce7086-a496-4666-9064-5ba0e6840c75",
    "name" : "My pool.",
    "ip_version" : "dualstack",
    "pool_health" : {
      "minimum_healthy_member_count" : 0
    }
  },
  "request_id" : "c1a60da2-1ec7-4a1c-b4cc-73e1a57b368e"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.9.4 Updating a Backend Server Group

### Function

This API is used to update a backend server group.

### Constraints

The backend server group can be updated only when the provisioning status of the associated load balancer is **ACTIVE**.

### Calling Method

For details, see [Calling APIs](#).

### URI

PUT /v3/{project\_id}/elb/pools/{pool\_id}

**Table 5-287** Path Parameters

Parameter	Mandatory	Type	Description
pool_id	Yes	String	Specifies the backend server group ID.
project_id	Yes	String	Specifies the project ID.

### Request Parameters

**Table 5-288** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-289** Request body parameters

Parameter	Mandatory	Type	Description
pool	Yes	<a href="#">UpdatePoolOption</a> object	Specifies the backend server group.

**Table 5-290** UpdatePoolOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the backend server group. The value can only be updated to <b>true</b> .
description	No	String	Provides supplementary information about the backend server group. Minimum: <b>0</b> Maximum: <b>255</b>
lb_algorithm	No	String	Specifies the load balancing algorithm used by the load balancer to route requests to backend servers in the associated backend server group. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ROUND_ROBIN</b>: weighted round robin</li><li>● <b>LEAST_CONNECTIONS</b>: weighted least connections</li><li>● <b>SOURCE_IP</b>: source IP hash</li><li>● <b>QUIC_CID</b>: connection ID</li></ul> Note: <ul style="list-style-type: none"><li>● If the value is <b>SOURCE_IP</b>, the <b>weight</b> parameter will not take effect for backend servers.</li><li>● <b>QUIC_CID</b> is supported only when the protocol of the backend server group is QUIC.</li></ul>

Parameter	Mandatory	Type	Description
name	No	String	Specifies the backend server group name. Minimum: <b>0</b> Maximum: <b>255</b>
session_persistence	No	<a href="#">UpdatePoolSessionPersistenceOption</a> object	Specifies the sticky session.
slow_start	No	<a href="#">UpdatePoolSlowStartOption</a> object	Specifies slow start details. After you enable slow start, new backend servers added to the backend server group are warmed up, and the number of requests they can receive increases linearly during the configured slow start duration.  This parameter can be used when the protocol of the backend server group is HTTP or HTTPS. An error will be returned if the protocol is not HTTP or HTTPS.
member_deletion_protection_enable	No	Boolean	Specifies whether to enable deletion protection for the load balancer. <ul style="list-style-type: none"><li>• <b>true</b>: Enable deletion protection.</li><li>• <b>false</b> (default): Disable deletion protection.</li></ul> <b>NOTE</b> Disable deletion protection for all your resources before deleting your account.
vpc_id	No	String	Specifies the ID of the VPC where the backend server group works.  This parameter can be updated only when <b>vpc_id</b> is left blank. Minimum: <b>0</b> Maximum: <b>36</b>

Parameter	Mandatory	Type	Description
type	No	String	Specifies the type of the backend server group. Values: <ul style="list-style-type: none"><li>• <b>instance</b>: Any type of backend servers can be added. <b>vpc_id</b> is mandatory.</li><li>• <b>ip</b>: Only IP as backend servers can be added. <b>vpc_id</b> cannot be specified.</li><li>• <b>""</b>: Any type of backend servers can be added.</li></ul> Note: This parameter can be updated only when <b>type</b> is left blank.
pool_health	No	<b>PoolHealth</b> object	Specifies the configurations of the pool health feature.

**Table 5-291** UpdatePoolSessionPersistenceOption

Parameter	Mandatory	Type	Description
cookie_name	No	String	Specifies the cookie name. For shared load balancers, the name can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-). For dedicated load balancers, the name can contain a maximum of 255 characters, including letters, digits, underscores (_), hyphens (-), and periods (.). Note: This parameter will take effect only when <b>type</b> is set to <b>APP_COOKIE</b> . Otherwise, an error will be returned.

Parameter	Mandatory	Type	Description
type	No	String	Specifies the sticky session type. The value can be <b>SOURCE_IP</b> , <b>HTTP_COOKIE</b> , or <b>APP_COOKIE</b> . Note: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b> or <b>UDP</b>, only <b>SOURCE_IP</b> takes effect.</li><li>• For dedicated load balancers, if the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value can be <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b>.</li><li>• If the backend server group protocol is <b>QUIC</b>, sticky session must be enabled with <b>type</b> set to <b>SOURCE_IP</b>.</li></ul>
persistence_timeout	No	Integer	Specifies the stickiness duration, in minutes. This parameter will not take effect when <b>type</b> is set to <b>APP_COOKIE</b> . <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b>, <b>UDP</b>, or <b>QUIC</b>, the value ranges from <b>1</b> to <b>60</b>, and the default value is <b>1</b>.</li><li>• If the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value ranges from <b>1</b> to <b>1440</b>, and the default value is <b>1440</b>.</li></ul>

**Table 5-292** UpdatePoolSlowStartOption

Parameter	Mandatory	Type	Description
enable	No	Boolean	Specifies whether to enable slow start. <ul style="list-style-type: none"><li>• <b>true</b>: Enable slow start.</li><li>• <b>false</b>: Disable slow start.</li></ul>

Parameter	Mandatory	Type	Description
duration	No	Integer	Specifies the slow start duration, in seconds. The value ranges from <b>30</b> to <b>1200</b> , and the default value is <b>30</b> . Minimum: <b>30</b> Maximum: <b>1200</b>

**Table 5-293** PoolHealth

Parameter	Mandatory	Type	Description
minimum_healthy_member_count	No	Integer	If the number of healthy backend servers is less than the value specified for this parameter, the backend server group is considered as unhealthy. The value can be <b>0</b> (disabled) or <b>1</b> (enabled).

## Response Parameters

Status code: 200

**Table 5-294** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
pool	<b>Pool</b> object	Specifies the backend server group.

**Table 5-295** Pool

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the backend server group. The value can only be <b>true</b> . This parameter is unsupported. Please do not use it.
description	String	Provides supplementary information about the backend server group.

Parameter	Type	Description
healthmonitor_id	String	Specifies the ID of the health check configured for the backend server group.
id	String	Specifies the backend server group ID.
lb_algorithm	String	<p>Specifies the load balancing algorithm used by the load balancer to route requests to backend servers in the associated backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>● <b>ROUND_ROBIN</b>: weighted round robin</li><li>● <b>LEAST_CONNECTIONS</b>: weighted least connections</li><li>● <b>SOURCE_IP</b>: source IP hash</li><li>● <b>QUIC_CID</b>: connection ID</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>● If the value is <b>SOURCE_IP</b>, the <b>weight</b> parameter will not take effect for backend servers.</li><li>● <b>QUIC_CID</b> is supported only when the protocol of the backend server group is QUIC.</li></ul>
listeners	Array of <a href="#">ListenerRef</a> objects	Specifies the IDs of the listeners with which the backend server group is associated.
loadbalancers	Array of <a href="#">LoadBalancerRef</a> objects	Specifies the IDs of the load balancers with which the backend server group is associated.
members	Array of <a href="#">MemberRef</a> objects	Specifies the IDs of the backend servers in the backend server group.
name	String	Specifies the backend server group name.
project_id	String	Specifies the project ID.



Parameter	Type	Description
protocol	String	<p>Specifies the protocol used by the backend server group to receive requests. The value can be <b>TCP</b>, <b>UDP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>QUIC</b>, or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the listener's protocol is UDP, the protocol of the backend server group must be UDP or QUIC.</li> <li>• If the listener's protocol is TCP, the protocol of the backend server group must be TCP.</li> <li>• If the listener's protocol is HTTP, the protocol of the backend server group must be HTTP.</li> <li>• If the listener's protocol is HTTPS, the protocol of the backend server group can be HTTP or HTTPS.</li> <li>• If the listener's protocol is <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be HTTP.</li> <li>• If the protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be enabled and <b>type</b> must be set to <b>SOURCE_IP</b>.</li> </ul>
session_persistence	<b>SessionPersistence</b> object	Specifies the sticky session.
ip_version	String	<p>Specifies the IP address version supported by the backend server group.</p> <ul style="list-style-type: none"> <li>• Shared load balancers: The value is fixed at <b>v4</b>.</li> <li>• Dedicated load balancers: The value can be <b>dualstack</b> or <b>v4</b>. If the protocol of the backend server group is TCP, UDP, or QUIC, the value is <b>dualstack</b>. If the protocol of the backend server group is HTTP or HTTPS, the value is <b>v4</b>.</li> </ul>
slow_start	<b>SlowStart</b> object	<p>Specifies slow start details. After you enable slow start, new backend servers added to the backend server group are warmed up, and the number of requests they can receive increases linearly during the configured slow start duration.</p> <p>This parameter can be used when the protocol of the backend server group is HTTP or HTTPS. An error will be returned if the protocol is not HTTP or HTTPS.</p>

Parameter	Type	Description
member_deletion_protection_enable	Boolean	Specifies whether to enable deletion protection. <ul style="list-style-type: none"><li>● <b>true</b>: Enable deletion protection.</li><li>● <b>false</b>: Disable deletion protection.</li></ul> <b>NOTE</b> Disable deletion protection for all your resources before deleting your account.
created_at	String	Specifies the time when a backend server group was created. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when when a backend server group was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
vpc_id	String	Specifies the ID of the VPC where the backend server group works.
type	String	Specifies the type of the backend server group. Values: <ul style="list-style-type: none"><li>● <b>instance</b>: Any type of backend servers can be added. <b>vpc_id</b> is mandatory.</li><li>● <b>ip</b>: Only IP as backend servers can be added. <b>vpc_id</b> cannot be specified.</li><li>● <b>""</b>: Any type of backend servers can be added.</li></ul>
enterprise_project_id	String	Specifies the enterprise project ID of the IP address group.
pool_health	<b>PoolHealth</b> object	Specifies the configurations of the pool health feature.

**Table 5-296** ListenerRef

Parameter	Type	Description
id	String	Specifies the listener ID.

**Table 5-297** LoadBalancerRef

Parameter	Type	Description
id	String	Specifies the load balancer ID.

**Table 5-298** MemberRef

Parameter	Type	Description
id	String	Specifies the backend server ID.

**Table 5-299** SessionPersistence

Parameter	Type	Description
cookie_name	String	<p>Specifies the cookie name.</p> <p>For shared load balancers, the name can contain a maximum of 64 characters, including letters, digits, underscores (_), and hyphens (-).</p> <p>For dedicated load balancers, the name can contain a maximum of 255 characters, including letters, digits, underscores (_), hyphens (-), and periods (.).</p> <p>Note:</p> <p>This parameter will take effect only when <b>type</b> is set to <b>APP_COOKIE</b>. Otherwise, an error will be returned.</p>

Parameter	Type	Description
type	String	Specifies the sticky session type. The value can be <b>SOURCE_IP</b> , <b>HTTP_COOKIE</b> , or <b>APP_COOKIE</b> . Note: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b> or <b>UDP</b>, only <b>SOURCE_IP</b> takes effect.</li><li>• For dedicated load balancers, if the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value can only be <b>HTTP_COOKIE</b>.</li><li>• If the backend server group protocol is <b>QUIC</b>, sticky session must be enabled with <b>type</b> set to <b>SOURCE_IP</b>.</li></ul>
persistence_timeout	Integer	Specifies the stickiness duration, in minutes. This parameter will not take effect when <b>type</b> is set to <b>APP_COOKIE</b> . <ul style="list-style-type: none"><li>• If the protocol of the backend server group is <b>TCP</b>, <b>UDP</b>, or <b>QUIC</b>, the value ranges from <b>1</b> to <b>60</b>, and the default value is <b>1</b>.</li><li>• If the protocol of the backend server group is <b>HTTP</b> or <b>HTTPS</b>, the value ranges from <b>1</b> to <b>1440</b>, and the default value is <b>1440</b>.</li></ul>

**Table 5-300** SlowStart

Parameter	Type	Description
enable	Boolean	Specifies whether to enable slow start. <ul style="list-style-type: none"><li>• <b>true</b>: Enable slow start.</li><li>• <b>false</b>: Disable slow start.</li></ul> Default: <b>false</b>
duration	Integer	Specifies the slow start duration, in seconds. The value ranges from <b>30</b> to <b>1200</b> , and the default value is <b>30</b> . Minimum: <b>30</b> Maximum: <b>1200</b> Default: <b>30</b>

**Table 5-301** PoolHealth

Parameter	Type	Description
minimum_healthy_member_count	Integer	If the number of healthy backend servers is less than the value specified for this parameter, the backend server group is considered as unhealthy. The value can be <b>0</b> (disabled) or <b>1</b> (enabled).

## Example Requests

Changing the load balancing algorithm of a backend server group

```
PUT https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75
```

```
{
  "pool" : {
    "name" : "My pool.",
    "description" : "My pool update",
    "lb_algorithm" : "LEAST_CONNECTIONS"
  }
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "pool" : {
    "type" : "",
    "vpc_id" : "",
    "lb_algorithm" : "LEAST_CONNECTIONS",
    "protocol" : "TCP",
    "description" : "My pool update",
    "admin_state_up" : true,
    "member_deletion_protection_enable" : false,
    "loadbalancers" : [ {
      "id" : "098b2f68-af1c-41a9-8efd-69958722af62"
    } ],
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "session_persistence" : null,
    "healthmonitor_id" : null,
    "listeners" : [ {
      "id" : "0b11747a-b139-492f-9692-2df0b1c87193"
    }, {
      "id" : "61942790-2367-482a-8b0e-93840ea2a1c6"
    }, {
      "id" : "fd8f954c-f0f8-4d39-bb1d-41637cd6b1be"
    } ],
    "members" : [ ],
    "id" : "36ce7086-a496-4666-9064-5ba0e6840c75",
    "name" : "My pool.",
    "ip_version" : "dualstack",
    "pool_health" : {
      "minimum_healthy_member_count" : 0
    }
  },
  "request_id" : "8f40128b-c72b-4b64-986a-f7e2c633d75f"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.9.5 Deleting a Backend Server Group

### Function

This API is used to delete a backend server group.

### Constraints

A backend server group can be deleted only after all servers are removed from the group, the health check configured for the group is deleted, and the group has no forwarding policies associated.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/pools/{pool\_id}

**Table 5-302** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
pool_id	Yes	String	Specifies the ID of the backend server group.

### Request Parameters

**Table 5-303** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

None

## Example Requests

Deleting a backend server group

```
DELETE https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-  
a496-4666-9064-5ba0e6840c75
```

## Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

# 5.10 Backend Server

## 5.10.1 Adding a Backend Server

### Function

This API is used to add a backend server.

### Constraints

When you add backend servers, note the following:

- Two backend servers in the same backend server group must have different IP addresses and ports.
- If no subnets are specified during cloud server creation, IP as backend servers can be added. In this case, **address** must be set to an IPv4 address, the protocol of the backend server group must be TCP, HTTP, or HTTPS, and **IP as a Backend** must have been enabled for the load balancer.
- If a subnet is specified during cloud server creation, the subnet must be in the same VPC where the load balancer resides.
- If the backend server group supports IPv4/IPv6 dual stack, **address** can be an IPv4 address or an IPv6 address. If the backend server group supports only IPv4, **address** can only be an IPv4 address.

- If **type** of the backend server is set to **instance**, **address** must be a private IP address that is not used by any load balancer.

## Calling Method

For details, see [Calling APIs](#).

## URI

POST /v3/{project\_id}/elb/pools/{pool\_id}/members

**Table 5-304** Path Parameters

Parameter	Mandatory	Type	Description
pool_id	Yes	String	Specifies the ID of the backend server group.
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-305** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-306** Request body parameters

Parameter	Mandatory	Type	Description
member	Yes	<a href="#">CreateMemberOption</a> object	Specifies the backend server.



**Table 5-307** CreateMemberOption

Parameter	Mandatory	Type	Description
address	Yes	String	<p>Specifies the private IP address bound to the backend server.</p> <ul style="list-style-type: none"><li>• If <b>subnet_cidr_id</b> is left blank, <b>IP as a Backend</b> is enabled. In this case, the IP address must be an IPv4 address.</li><li>• If <b>subnet_cidr_id</b> is not left blank, the IP address can be IPv4 or IPv6. It must be in the subnet specified by <b>subnet_cidr_id</b> and can only be bound to the primary NIC of the backend server.</li></ul> <p>Minimum: <b>1</b> Maximum: <b>64</b></p>
admin_state_up	No	Boolean	<p>Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b>.</p> <p>Although this parameter can be used in the APIs for creating and updating backend servers, its actual value depends on whether cloud servers exist. If cloud servers exist, the value is <b>true</b>. Otherwise, the value is <b>false</b>.</p>
name	No	String	<p>Specifies the backend server name. Note: The name is not an ECS name. If this parameter is not specified, an empty value will be returned.</p> <p>Minimum: <b>0</b> Maximum: <b>255</b></p>
project_id	No	String	<p>Specifies the project ID.</p> <p>Minimum: <b>1</b> Maximum: <b>32</b></p>

Parameter	Mandatory	Type	Description
protocol_port	No	Integer	<p>Specifies the port used by the backend server to receive requests.</p> <p><b>NOTE</b> This parameter can be left blank because it does not take effect if <b>any_port_enable</b> is set to <b>true</b> for a backend server group.</p> <p>Minimum: <b>1</b> Maximum: <b>65535</b></p>

Parameter	Mandatory	Type	Description
subnet_cidr_id	No	String	<p>Specifies the ID of the subnet where the backend server resides. It can be an ID of an IPv4 or IPv6 subnet.</p> <ul style="list-style-type: none"> <li>If you use an IPv4 subnet, you can query parameter <b>neutron_subnet_id</b> in the response by calling the API (GET https:// {VPC_Endpoint}/v1/ {project_id}/subnets) to obtain the ID of the IPv4 subnet.</li> <li>If you use an IPv6 subnet, you can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https:// {VPC_Endpoint}/v1/ {project_id}/subnets) to obtain the ID of the IPv6 subnet.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>The IPv4 or IPv6 subnet must be in the same VPC as the subnet of the load balancer.</li> <li>If <b>IP as a Backend</b> has been enabled for the load balancer, you do not need to specify this parameter. In this case, IP as backend servers must use private IPv4 addresses, and the protocol of the backend server group must be TCP, HTTP, or HTTPS.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>36</b></p>

Parameter	Mandatory	Type	Description
weight	No	Integer	Specifies the weight of the backend server. Requests are routed to backend servers in the same backend server group based on their weights. The value ranges from <b>0</b> to <b>100</b> , and the default value is <b>1</b> . The larger the weight is, the higher proportion of requests the backend server receives. If the weight is set to 0, the backend server will not accept new requests.  If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b> , this parameter will not take effect.

## Response Parameters

Status code: 201

**Table 5-308** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
member	<b>Member</b> object	Specifies the backend server.

**Table 5-309** Member

Parameter	Type	Description
id	String	Specifies the backend server ID. Note: The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.
name	String	Specifies the backend server name. Note: The name is not an ECS name.
project_id	String	Specifies the project ID of the backend server.

Parameter	Type	Description
pool_id	String	Specifies the ID of the backend server group to which the backend server belongs. This parameter is unsupported. Please do not use it.
admin_state_up	Boolean	Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> . Although this parameter can be used in the APIs for creating and updating backend servers, its actual value depends on whether cloud servers exist. If cloud servers exist, the value is <b>true</b> . Otherwise, the value is <b>false</b> .
subnet_cidr_id	String	Specifies the ID of the subnet where the backend server resides. It can be an ID of an IPv4 or IPv6 subnet. <ul style="list-style-type: none"> <li>If you use an IPv4 subnet, you can query parameter <b>neutron_subnet_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv4 subnet.</li> <li>If you use an IPv6 subnet, you can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv6 subnet.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>The IPv4 or IPv6 subnet must be in the same VPC as the subnet of the load balancer.</li> <li>If <b>IP as a Backend</b> has been enabled for the load balancer, you do not need to specify this parameter. In this case, IP as backend servers must use private IPv4 addresses, and the protocol of the backend server group must be TCP, HTTP, or HTTPS.</li> </ul>
protocol_port	Integer	Specifies the port used by the backend server to receive requests. <b>NOTE</b> This parameter can be left blank because it does not take effect if <b>any_port_enable</b> is set to <b>true</b> for a backend server group. Minimum: <b>1</b> Maximum: <b>65535</b>

Parameter	Type	Description
weight	Integer	<p>Specifies the weight of the backend server. Requests are routed to backend servers in the same backend server group based on their weights.</p> <p>The value ranges from <b>0</b> to <b>100</b>, and the default value is <b>1</b>. The larger the weight is, the higher proportion of requests the backend server receives. If the weight is set to 0, the backend server will not accept new requests.</p> <p>If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b>, this parameter will not take effect.</p> <p>Minimum: <b>0</b> Maximum: <b>100</b></p>
address	String	<p>Specifies the private IP address bound to the backend server.</p> <ul style="list-style-type: none"><li>• If <b>subnet_cidr_id</b> is left blank, <b>IP as a Backend</b> is enabled. In this case, the IP address must be an IPv4 address.</li><li>• If <b>subnet_cidr_id</b> is not left blank, the IP address can be IPv4 or IPv6. It must be in the subnet specified by <b>subnet_cidr_id</b> and can only be bound to the primary NIC of the backend server.</li></ul>
ip_version	String	<p>Specifies the IP version supported by the backend server. The value can be <b>v4</b> (IPv4) or <b>v6</b> (IPv6), depending on the value of <b>address</b> returned by the system.</p>
device_owner	String	<p>Specifies whether the backend server is associated with an ECS.</p> <ul style="list-style-type: none"><li>• If this parameter is left blank, the backend server is not associated with an ECS.</li><li>• If the value is <b>compute:{az_name}</b>, the backend server is associated with an ECS. <b>{az_name}</b> indicates the AZ where the ECS resides.</li></ul> <p>This parameter is unsupported. Please do not use it.</p>
device_id	String	<p>Specifies the ID of the ECS with which the backend server is associated. If this parameter is left blank, the backend server is not associated with an ECS.</p> <p>This parameter is unsupported. Please do not use it.</p>

Parameter	Type	Description
operating_status	String	Specifies the health status of the backend server if <b>listener_id</b> under <b>status</b> is not specified. The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>ONLINE</b>: The backend server is running normally.</li> <li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li> <li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li> </ul>
status	Array of <b>MemberStatus</b> objects	Specifies the health status of the backend server if <b>listener_id</b> is specified.
loadbalancer_id	String	Specifies the ID of the load balancer with which the backend server is associated. This parameter is unsupported. Please do not use it.
loadbalancers	Array of <b>ResourceID</b> objects	Specifies the IDs of the load balancers associated with the backend server. This parameter is unsupported. Please do not use it.
created_at	String	Specifies the time when a backend server was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when a backend server was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
member_type	String	Specifies the type of the backend server. Values: <ul style="list-style-type: none"> <li>● <b>ip</b>: IP as backend servers</li> <li>● <b>instance</b>: ECSs used as backend servers</li> </ul>

Parameter	Type	Description
instance_id	String	Specifies the ID of the ECS used as the backend server. If this parameter is left blank, the backend server is not an ECS. For example, it may be an IP address.

**Table 5-310** MemberStatus

Parameter	Type	Description
listener_id	String	Specifies the listener ID.
operating_status	String	Specifies the health status of the backend server. The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>ONLINE</b>: The backend server is running normally.</li> <li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li> <li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li> </ul>

**Table 5-311** ResourceID

Parameter	Type	Description
id	String	Specifies the resource ID.

## Example Requests

- Example 1: Adding a backend server

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members
```

```
{
  "member" : {
    "subnet_cidr_id" : "c09f620e-3492-4429-ac15-445d5dd9ca74",
    "protocol_port" : 89,
    "name" : "My member",
    "address" : "120.10.10.16"
  }
}
```

- Example 2: Adding a server of IP as a Backend

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members
```

```
{
  "member" : {
    "protocol_port" : 89,
    "name" : "My member",
  }
}
```



```
"address" : "120.10.10.16"  
}  
}
```

## Example Responses

### Status code: 201

Normal response to POST requests.

```
{  
  "member" : {  
    "name" : "My member",  
    "weight" : 1,  
    "admin_state_up" : false,  
    "subnet_cidr_id" : "c09f620e-3492-4429-ac15-445d5dd9ca74",  
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",  
    "address" : "120.10.10.16",  
    "protocol_port" : 89,  
    "id" : "1923923e-fe8a-484f-bdbc-e11559b1f48f",  
    "operating_status" : "NO_MONITOR",  
    "status" : [ {  
      "listener_id" : "427eee03-b569-4d6c-b1f1-712032f7ec2d",  
      "operating_status" : "NO_MONITOR"  
    } ],  
    "ip_version" : "v4"  
  },  
  "request_id" : "f354090d-41db-41e0-89c6-7a943ec50792"  
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.10.2 Querying Backend Servers

### Function

This API is used to query all backend servers.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

## Calling Method

For details, see [Calling APIs](#).

## URI

GET /v3/{project\_id}/elb/pools/{pool\_id}/members

**Table 5-312** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
pool_id	Yes	String	Specifies the ID of the backend server group.

**Table 5-313** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If this parameter is not specified, the first page will be queried.</li><li>• This parameter cannot be left blank or set to an invalid ID.</li></ul>
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>

Parameter	Mandatory	Type	Description
page_reverse	No	Boolean	<p>Specifies whether to use reverse query. Values:</p> <ul style="list-style-type: none"> <li>• <b>true</b>: Query the previous page.</li> <li>• <b>false</b> (default): Query the next page.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter must be used together with <b>limit</b>.</li> <li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li> </ul>
name	No	Array	<p>Specifies the backend server name.</p> <p>Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i>.</p>
weight	No	Array	<p>Specifies the weight of the backend server. Requests are routed to backend servers in the same backend server group based on their weights.</p> <p>The value ranges from <b>0</b> to <b>100</b>. The larger the weight is, the higher proportion of requests the backend server receives. If the weight is set to 0, the backend server will not accept new requests.</p> <p>Multiple weights can be queried in the format of <i>weight=xxx&amp;weight=xxx</i>.</p>

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .  Although this parameter can be used in the APIs for creating and updating backend servers, its actual value depends on whether cloud servers exist. If cloud servers exist, the value is <b>true</b> . Otherwise, the value is <b>false</b> .
subnet_cidr_id	No	Array	Specifies the ID of the IPv4 or IPv6 subnet where the backend server resides.  Multiple IDs can be queried in the format of <i>subnet_cidr_id=xxx&amp;subnet_cidr_id=xxx</i> .
address	No	Array	Specifies the IP address bound to the backend server.  Multiple IP addresses can be queried in the format of <i>address=xxx&amp;address=xxx</i> .
protocol_port	No	Array	Specifies the port used by the backend server to receive requests.  Multiple ports can be queried in the format of <i>protocol_port=xxx&amp;protocol_port=xxx</i> .
id	No	Array	Specifies the backend server ID.  Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .

Parameter	Mandatory	Type	Description
operating_status	No	Array	<p>Specifies the health status of the backend server. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>ONLINE</b>: The backend server is running normally.</li> <li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li> <li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li> </ul> <p>Multiple operating statuses can be queried in the format of <i>operating_status=xxx&amp;operating_status=xxx</i>.</p>
enterprise_project_id	No	Array	<p>Specifies the enterprise project ID.</p> <ul style="list-style-type: none"> <li>● If this parameter is not passed, resources in the default enterprise project are queried, and authentication is performed based on the default enterprise project.</li> <li>● If this parameter is passed, its value can be the ID of an existing enterprise project (resources in the specific enterprise project are required) or <b>all_granted_eps</b> (resources in all enterprise projects are queried).</li> </ul> <p>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i>.</p>
ip_version	No	Array	<p>Specifies the IP version supported by the backend server. The value can be <b>v4</b> (IPv4) or <b>v6</b> (IPv6).</p>

Parameter	Mandatory	Type	Description
member_type	No	Array	Specifies the type of the backend server. Values: <ul style="list-style-type: none"><li>• <b>ip</b>: IP as backend servers</li><li>• <b>instance</b>: ECSs used as backend servers Multiple values can be queried in the format of <i>member_type=xxx&amp;member_type=xxx</i>.</li></ul>
instance_id	No	Array	Specifies the ID of the instance associated with the backend server. If this parameter is left blank, the backend server is not an ECS. It may be an IP address.  Multiple instance id can be queried in the format of <i>instance_id=xxx&amp;instance_id=xxx</i> .

## Request Parameters

**Table 5-314** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-315** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<a href="#">PageInfo</a> object	Shows pagination information.
members	Array of <a href="#">Member</a> objects	Lists the backend servers.

**Table 5-316** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

**Table 5-317** Member

Parameter	Type	Description
id	String	Specifies the backend server ID. Note: The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.
name	String	Specifies the backend server name. Note: The name is not an ECS name.
project_id	String	Specifies the project ID of the backend server.
pool_id	String	Specifies the ID of the backend server group to which the backend server belongs. This parameter is unsupported. Please do not use it.
admin_state_up	Boolean	Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> . Although this parameter can be used in the APIs for creating and updating backend servers, its actual value depends on whether cloud servers exist. If cloud servers exist, the value is <b>true</b> . Otherwise, the value is <b>false</b> .

Parameter	Type	Description
subnet_cidr_id	String	<p>Specifies the ID of the subnet where the backend server resides. It can be an ID of an IPv4 or IPv6 subnet.</p> <ul style="list-style-type: none"><li>• If you use an IPv4 subnet, you can query parameter <b>neutron_subnet_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv4 subnet.</li><li>• If you use an IPv6 subnet, you can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv6 subnet.</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• The IPv4 or IPv6 subnet must be in the same VPC as the subnet of the load balancer.</li><li>• If <b>IP as a Backend</b> has been enabled for the load balancer, you do not need to specify this parameter. In this case, IP as backend servers must use private IPv4 addresses, and the protocol of the backend server group must be TCP, HTTP, or HTTPS.</li></ul>
protocol_port	Integer	<p>Specifies the port used by the backend server to receive requests.</p> <p><b>NOTE</b> This parameter can be left blank because it does not take effect if <b>any_port_enable</b> is set to <b>true</b> for a backend server group.</p> <p>Minimum: <b>1</b> Maximum: <b>65535</b></p>
weight	Integer	<p>Specifies the weight of the backend server. Requests are routed to backend servers in the same backend server group based on their weights.</p> <p>The value ranges from <b>0</b> to <b>100</b>, and the default value is <b>1</b>. The larger the weight is, the higher proportion of requests the backend server receives. If the weight is set to 0, the backend server will not accept new requests.</p> <p>If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b>, this parameter will not take effect.</p> <p>Minimum: <b>0</b> Maximum: <b>100</b></p>



Parameter	Type	Description
address	String	<p>Specifies the private IP address bound to the backend server.</p> <ul style="list-style-type: none"> <li>• If <b>subnet_cidr_id</b> is left blank, <b>IP as a Backend</b> is enabled. In this case, the IP address must be an IPv4 address.</li> <li>• If <b>subnet_cidr_id</b> is not left blank, the IP address can be IPv4 or IPv6. It must be in the subnet specified by <b>subnet_cidr_id</b> and can only be bound to the primary NIC of the backend server.</li> </ul>
ip_version	String	<p>Specifies the IP version supported by the backend server. The value can be <b>v4</b> (IPv4) or <b>v6</b> (IPv6), depending on the value of <b>address</b> returned by the system.</p>
device_owner	String	<p>Specifies whether the backend server is associated with an ECS.</p> <ul style="list-style-type: none"> <li>• If this parameter is left blank, the backend server is not associated with an ECS.</li> <li>• If the value is <b>compute:{az_name}</b>, the backend server is associated with an ECS. <b>{az_name}</b> indicates the AZ where the ECS resides.</li> </ul> <p>This parameter is unsupported. Please do not use it.</p>
device_id	String	<p>Specifies the ID of the ECS with which the backend server is associated. If this parameter is left blank, the backend server is not associated with an ECS.</p> <p>This parameter is unsupported. Please do not use it.</p>
operating_status	String	<p>Specifies the health status of the backend server if <b>listener_id</b> under <b>status</b> is not specified. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>ONLINE</b>: The backend server is running normally.</li> <li>• <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li> <li>• <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li> </ul>
status	Array of <b>MemberStatus</b> objects	<p>Specifies the health status of the backend server if <b>listener_id</b> is specified.</p>

Parameter	Type	Description
loadbalancer_id	String	Specifies the ID of the load balancer with which the backend server is associated. This parameter is unsupported. Please do not use it.
loadbalancers	Array of <b>ResourceID</b> objects	Specifies the IDs of the load balancers associated with the backend server. This parameter is unsupported. Please do not use it.
created_at	String	Specifies the time when a backend server was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when a backend server was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
member_type	String	Specifies the type of the backend server. Values: <ul style="list-style-type: none"><li>● <b>ip</b>: IP as backend servers</li><li>● <b>instance</b>: ECSs used as backend servers</li></ul>
instance_id	String	Specifies the ID of the ECS used as the backend server. If this parameter is left blank, the backend server is not an ECS. For example, it may be an IP address.

**Table 5-318** MemberStatus

Parameter	Type	Description
listener_id	String	Specifies the listener ID.

Parameter	Type	Description
operating_status	String	Specifies the health status of the backend server. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The backend server is running normally.</li><li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li><li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul>

**Table 5-319** ResourceID

Parameter	Type	Description
id	String	Specifies the resource ID.

## Example Requests

Querying backend servers in a given backend server group

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "members": [ {
    "name": "quark-neutron",
    "weight": 100,
    "admin_state_up": false,
    "subnet_cidr_id": "c09f620e-3492-4429-ac15-445d5dd9ca74",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "address": "120.10.10.2",
    "protocol_port": 2100,
    "id": "0aa23a52-1ac2-4a2d-8dfa-1e11cb26079d",
    "operating_status": "NO_MONITOR",
    "ip_version": "v4"
  }, {
    "name": "quark-neutron",
    "weight": 100,
    "admin_state_up": false,
    "subnet_cidr_id": "c09f620e-3492-4429-ac15-445d5dd9ca74",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "address": "120.10.10.2",
    "protocol_port": 2101,
    "id": "315b928b-39e4-4d5f-8e48-39e9108c1035",
    "operating_status": "NO_MONITOR",
    "ip_version": "v4"
  }, {
    "name": "quark-neutron",
```

```
"weight" : 100,
"admin_state_up" : false,
"subnet_cidr_id" : "27e4ab69-a5ed-46c6-921a-5212be19ce87",
"project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
"address" : "2001:db8:a583:6a::4",
"protocol_port" : 2101,
"id" : "53976f72-d2aa-47f5-baf4-4906ed6b42d6",
"operating_status" : "NO_MONITOR",
"ip_version" : "v6"
}],
"page_info" : {
"previous_marker" : "0aa23a52-1ac2-4a2d-8dfa-1e11cb26079d",
"current_count" : 3
},
"request_id" : "87e29592-7ab8-401a-9bf4-66cf6747eab9"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.10.3 Viewing Details of a Backend Server

### Function

This API is used to view details of a backend server.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/pools/{pool\_id}/members/{member\_id}

**Table 5-320** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
pool_id	Yes	String	Specifies the ID of the backend server group.

Parameter	Mandatory	Type	Description
member_id	Yes	String	Specifies the backend server ID. Note: The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.

## Request Parameters

Table 5-321 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

Table 5-322 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
member	<b>Member</b> object	Specifies the backend server.

Table 5-323 Member

Parameter	Type	Description
id	String	Specifies the backend server ID. Note: The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.

Parameter	Type	Description
name	String	Specifies the backend server name. Note: The name is not an ECS name.
project_id	String	Specifies the project ID of the backend server.
pool_id	String	Specifies the ID of the backend server group to which the backend server belongs.  This parameter is unsupported. Please do not use it.
admin_state_up	Boolean	Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .  Although this parameter can be used in the APIs for creating and updating backend servers, its actual value depends on whether cloud servers exist. If cloud servers exist, the value is <b>true</b> . Otherwise, the value is <b>false</b> .
subnet_cidr_id	String	Specifies the ID of the subnet where the backend server resides. It can be an ID of an IPv4 or IPv6 subnet. <ul style="list-style-type: none"><li>• If you use an IPv4 subnet, you can query parameter <b>neutron_subnet_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv4 subnet.</li><li>• If you use an IPv6 subnet, you can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv6 subnet.</li></ul> Note: <ul style="list-style-type: none"><li>• The IPv4 or IPv6 subnet must be in the same VPC as the subnet of the load balancer.</li><li>• If <b>IP as a Backend</b> has been enabled for the load balancer, you do not need to specify this parameter. In this case, IP as backend servers must use private IPv4 addresses, and the protocol of the backend server group must be TCP, HTTP, or HTTPS.</li></ul>

Parameter	Type	Description
protocol_port	Integer	<p>Specifies the port used by the backend server to receive requests.</p> <p><b>NOTE</b> This parameter can be left blank because it does not take effect if <b>any_port_enable</b> is set to <b>true</b> for a backend server group.</p> <p>Minimum: <b>1</b> Maximum: <b>65535</b></p>
weight	Integer	<p>Specifies the weight of the backend server. Requests are routed to backend servers in the same backend server group based on their weights.</p> <p>The value ranges from <b>0</b> to <b>100</b>, and the default value is <b>1</b>. The larger the weight is, the higher proportion of requests the backend server receives. If the weight is set to <b>0</b>, the backend server will not accept new requests.</p> <p>If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b>, this parameter will not take effect.</p> <p>Minimum: <b>0</b> Maximum: <b>100</b></p>
address	String	<p>Specifies the private IP address bound to the backend server.</p> <ul style="list-style-type: none"><li>• If <b>subnet_cidr_id</b> is left blank, <b>IP as a Backend</b> is enabled. In this case, the IP address must be an IPv4 address.</li><li>• If <b>subnet_cidr_id</b> is not left blank, the IP address can be IPv4 or IPv6. It must be in the subnet specified by <b>subnet_cidr_id</b> and can only be bound to the primary NIC of the backend server.</li></ul>
ip_version	String	<p>Specifies the IP version supported by the backend server. The value can be <b>v4</b> (IPv4) or <b>v6</b> (IPv6), depending on the value of <b>address</b> returned by the system.</p>

Parameter	Type	Description
device_owner	String	<p>Specifies whether the backend server is associated with an ECS.</p> <ul style="list-style-type: none"><li>• If this parameter is left blank, the backend server is not associated with an ECS.</li><li>• If the value is <b>compute:{az_name}</b>, the backend server is associated with an ECS. <b>{az_name}</b> indicates the AZ where the ECS resides.</li></ul> <p>This parameter is unsupported. Please do not use it.</p>
device_id	String	<p>Specifies the ID of the ECS with which the backend server is associated. If this parameter is left blank, the backend server is not associated with an ECS.</p> <p>This parameter is unsupported. Please do not use it.</p>
operating_status	String	<p>Specifies the health status of the backend server if <b>listener_id</b> under <b>status</b> is not specified. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>ONLINE</b>: The backend server is running normally.</li><li>• <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li><li>• <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul>
status	Array of <b>MemberStatus</b> objects	<p>Specifies the health status of the backend server if <b>listener_id</b> is specified.</p>
loadbalancer_id	String	<p>Specifies the ID of the load balancer with which the backend server is associated.</p> <p>This parameter is unsupported. Please do not use it.</p>
loadbalancers	Array of <b>ResourceID</b> objects	<p>Specifies the IDs of the load balancers associated with the backend server.</p> <p>This parameter is unsupported. Please do not use it.</p>



Parameter	Type	Description
created_at	String	Specifies the time when a backend server was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when a backend server was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).  This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
member_type	String	Specifies the type of the backend server. Values: <ul style="list-style-type: none"><li>● <b>ip</b>: IP as backend servers</li><li>● <b>instance</b>: ECSs used as backend servers</li></ul>
instance_id	String	Specifies the ID of the ECS used as the backend server. If this parameter is left blank, the backend server is not an ECS. For example, it may be an IP address.

**Table 5-324** MemberStatus

Parameter	Type	Description
listener_id	String	Specifies the listener ID.
operating_status	String	Specifies the health status of the backend server. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The backend server is running normally.</li><li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li><li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul>

**Table 5-325** ResourceID

Parameter	Type	Description
id	String	Specifies the resource ID.

## Example Requests

Querying details of a backend server

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members/1923923e-fe8a-484f-bdbc-e11559b1f48f
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "member": {
    "name": "My member",
    "weight": 10,
    "admin_state_up": false,
    "subnet_cidr_id": "c09f620e-3492-4429-ac15-445d5dd9ca74",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "address": "120.10.10.16",
    "protocol_port": 89,
    "id": "1923923e-fe8a-484f-bdbc-e11559b1f48f",
    "operating_status": "NO_MONITOR",
    "ip_version": "v4"
  },
  "request_id": "45688823-45f1-40cd-9d24-e51a9574a45b"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.10.4 Updating a Backend Server

### Function

This API is used to update a backend server.

## Constraints

If the provisioning status of the associated load balancer is not **ACTIVE**, the backend server cannot be updated.

## Calling Method

For details, see [Calling APIs](#).

## URI

PUT /v3/{project\_id}/elb/pools/{pool\_id}/members/{member\_id}

**Table 5-326** Path Parameters

Parameter	Mandatory	Type	Description
member_id	Yes	String	Specifies the backend server ID. Note: The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.
pool_id	Yes	String	Specifies the ID of the backend server group.
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-327** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-328** Request body parameters

Parameter	Mandatory	Type	Description
member	Yes	<a href="#">UpdateMemberOption</a> object	Specifies the backend server.

**Table 5-329** UpdateMemberOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the backend server. Although this parameter can be used in the APIs for creating and updating backend servers, its actual value depends on whether cloud servers exist. If cloud servers exist, the value is <b>true</b> . Otherwise, the value is <b>false</b> . This parameter is unsupported. Please do not use it.
name	No	String	Specifies the backend server name. Minimum: <b>0</b> Maximum: <b>255</b>
weight	No	Integer	Specifies the weight of the backend server. Requests are routed to backend servers in the same backend server group based on their weights. The value ranges from <b>0</b> to <b>100</b> , and the default value is <b>1</b> . The larger the weight is, the higher proportion of requests the backend server receives. If the weight is set to 0, the backend server will not accept new requests. If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b> , this parameter will not take effect. Minimum: <b>0</b> Maximum: <b>100</b>

Parameter	Mandatory	Type	Description
protocol_port	No	Integer	Specifies the port used by the backend server to receive requests. <b>NOTE</b> This parameter cannot be updated if <b>any_port_enable</b> is set to <b>true</b> for a backend server group. Minimum: <b>1</b> Maximum: <b>65535</b>

## Response Parameters

Status code: 200

Table 5-330 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
member	<b>Member</b> object	Specifies the backend server.

Table 5-331 Member

Parameter	Type	Description
id	String	Specifies the backend server ID. Note: The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.
name	String	Specifies the backend server name. Note: The name is not an ECS name.
project_id	String	Specifies the project ID of the backend server.
pool_id	String	Specifies the ID of the backend server group to which the backend server belongs. This parameter is unsupported. Please do not use it.

Parameter	Type	Description
admin_state_up	Boolean	<p>Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b>.</p> <p>Although this parameter can be used in the APIs for creating and updating backend servers, its actual value depends on whether cloud servers exist. If cloud servers exist, the value is <b>true</b>. Otherwise, the value is <b>false</b>.</p>
subnet_cidr_id	String	<p>Specifies the ID of the subnet where the backend server resides. It can be an ID of an IPv4 or IPv6 subnet.</p> <ul style="list-style-type: none"> <li>• If you use an IPv4 subnet, you can query parameter <b>neutron_subnet_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv4 subnet.</li> <li>• If you use an IPv6 subnet, you can query parameter <b>neutron_network_id</b> in the response by calling the API (GET https://{VPC_Endpoint}/v1/{project_id}/subnets) to obtain the ID of the IPv6 subnet.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• The IPv4 or IPv6 subnet must be in the same VPC as the subnet of the load balancer.</li> <li>• If <b>IP as a Backend</b> has been enabled for the load balancer, you do not need to specify this parameter. In this case, IP as backend servers must use private IPv4 addresses, and the protocol of the backend server group must be TCP, HTTP, or HTTPS.</li> </ul>
protocol_port	Integer	<p>Specifies the port used by the backend server to receive requests.</p> <p><b>NOTE</b> This parameter can be left blank because it does not take effect if <b>any_port_enable</b> is set to <b>true</b> for a backend server group.</p> <p>Minimum: <b>1</b> Maximum: <b>65535</b></p>

Parameter	Type	Description
weight	Integer	<p>Specifies the weight of the backend server. Requests are routed to backend servers in the same backend server group based on their weights.</p> <p>The value ranges from <b>0</b> to <b>100</b>, and the default value is <b>1</b>. The larger the weight is, the higher proportion of requests the backend server receives. If the weight is set to 0, the backend server will not accept new requests.</p> <p>If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b>, this parameter will not take effect.</p> <p>Minimum: <b>0</b> Maximum: <b>100</b></p>
address	String	<p>Specifies the private IP address bound to the backend server.</p> <ul style="list-style-type: none"><li>• If <b>subnet_cidr_id</b> is left blank, <b>IP as a Backend</b> is enabled. In this case, the IP address must be an IPv4 address.</li><li>• If <b>subnet_cidr_id</b> is not left blank, the IP address can be IPv4 or IPv6. It must be in the subnet specified by <b>subnet_cidr_id</b> and can only be bound to the primary NIC of the backend server.</li></ul>
ip_version	String	<p>Specifies the IP version supported by the backend server. The value can be <b>v4</b> (IPv4) or <b>v6</b> (IPv6), depending on the value of <b>address</b> returned by the system.</p>
device_owner	String	<p>Specifies whether the backend server is associated with an ECS.</p> <ul style="list-style-type: none"><li>• If this parameter is left blank, the backend server is not associated with an ECS.</li><li>• If the value is <b>compute:{az_name}</b>, the backend server is associated with an ECS. <b>{az_name}</b> indicates the AZ where the ECS resides.</li></ul> <p>This parameter is unsupported. Please do not use it.</p>
device_id	String	<p>Specifies the ID of the ECS with which the backend server is associated. If this parameter is left blank, the backend server is not associated with an ECS.</p> <p>This parameter is unsupported. Please do not use it.</p>

Parameter	Type	Description
operating_status	String	Specifies the health status of the backend server if <b>listener_id</b> under <b>status</b> is not specified. The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>ONLINE</b>: The backend server is running normally.</li> <li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li> <li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li> </ul>
status	Array of <b>MemberStatus</b> objects	Specifies the health status of the backend server if <b>listener_id</b> is specified.
loadbalancer_id	String	Specifies the ID of the load balancer with which the backend server is associated. This parameter is unsupported. Please do not use it.
loadbalancers	Array of <b>ResourceID</b> objects	Specifies the IDs of the load balancers associated with the backend server. This parameter is unsupported. Please do not use it.
created_at	String	Specifies the time when a backend server was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when a backend server was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
member_type	String	Specifies the type of the backend server. Values: <ul style="list-style-type: none"> <li>● <b>ip</b>: IP as backend servers</li> <li>● <b>instance</b>: ECSs used as backend servers</li> </ul>



Parameter	Type	Description
instance_id	String	Specifies the ID of the ECS used as the backend server. If this parameter is left blank, the backend server is not an ECS. For example, it may be an IP address.

**Table 5-332** MemberStatus

Parameter	Type	Description
listener_id	String	Specifies the listener ID.
operating_status	String	Specifies the health status of the backend server. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The backend server is running normally.</li><li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group to which the backend server belongs.</li><li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul>

**Table 5-333** ResourceID

Parameter	Type	Description
id	String	Specifies the resource ID.

## Example Requests

Changing the weight of a backend server

```
PUT https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members/1923923e-fe8a-484f-bdbc-e11559b1f48f
```

```
{  
  "member": {  
    "name": "My member",  
    "weight": 10  
  }  
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{  
  "member": {
```

```
"name" : "My member",
"weight" : 10,
"admin_state_up" : false,
"subnet_cidr_id" : "c09f620e-3492-4429-ac15-445d5dd9ca74",
"project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
"address" : "120.10.10.16",
"protocol_port" : 89,
"id" : "1923923e-fe8a-484f-bdbc-e11559b1f48f",
"operating_status" : "NO_MONITOR",
"ip_version" : "v4"
},
"request_id" : "e7b569d4-15ad-494d-9dd9-8cd740eef8f6"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.10.5 Removing a Backend Server

### Function

This API is used to remove a backend server.

### Constraints

After you remove a backend server, new connections to this server will not be established. However, persistent connections that have been established will be maintained.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/pools/{pool\_id}/members/{member\_id}

**Table 5-334** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
pool_id	Yes	String	Specifies the ID of the backend server group.

Parameter	Mandatory	Type	Description
member_id	Yes	String	Specifies the backend server ID. <b>NOTE</b> The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer. You can call the API for <a href="#">querying backend servers</a> to obtain the backend server ID.

## Request Parameters

Table 5-335 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

None

## Example Requests

Deleting a given backend server

```
DELETE https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members/1923923e-fe8a-484f-bdbc-e11559b1f48f
```

## Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

## 5.11 Health Check

### 5.11.1 Configuring a Health Check

#### Function

This API is used to configure a health check.

#### Constraints

The security groups must have rules that allow traffic to 100.125.0.0/16. If you want to use UDP for health checks, ensure that the protocol of the backend server group is UDP.

#### Calling Method

For details, see [Calling APIs](#).

#### URI

POST /v3/{project\_id}/elb/healthmonitors

**Table 5-336** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

#### Request Parameters

**Table 5-337** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-338** Request body parameters

Parameter	Mandatory	Type	Description
healthmonitor	Yes	<a href="#">CreateHealthMonitorOption</a> object	Specifies the health check.

**Table 5-339** CreateHealthMonitorOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the health check. <ul style="list-style-type: none"><li>• <b>true</b> (default): Health check is enabled.</li><li>• <b>false</b>: Health check is disabled.</li></ul>
delay	Yes	Integer	Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> .
domain_name	No	String	Specifies the domain name that HTTP requests are sent to during the health check. The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter. The value is left blank by default, indicating that the virtual IP address of the load balancer is used as the destination address of HTTP requests. This parameter is available only when <b>type</b> is set to <b>HTTP</b> . Minimum: <b>1</b> Maximum: <b>100</b>

Parameter	Mandatory	Type	Description
expected_codes	No	String	<p>Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>. The value options are as follows:</p> <ul style="list-style-type: none"> <li>• A specific value, for example, 200</li> <li>• A list of values that are separated with commas (,), for example, 200, 202</li> <li>• A value range, for example, 200-204</li> </ul> <p>The default value is <b>200</b>. Multiple status codes can be queried in the format of <i>expected_codes=xxx&amp;expected_codes=xxx</i>. Minimum: <b>1</b> Maximum: <b>64</b></p>
http_method	No	String	<p>Specifies the HTTP method. The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT,</b> or <b>PATCH</b>. The default value is <b>GET</b>.</p> <p>This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p> <p>This parameter is unsupported. Please do not use it. Minimum: <b>1</b> Maximum: <b>16</b></p>
max_retries	Yes	Integer	<p>Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b>. The value ranges from <b>1</b> to <b>10</b>. Minimum: <b>1</b> Maximum: <b>10</b></p>

Parameter	Mandatory	Type	Description
max_retries_down	No	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> . Minimum: <b>1</b> Maximum: <b>10</b>
monitor_port	No	Integer	Specifies the port used for the health check. If this parameter is left blank, a port of the backend server will be used by default. The port number ranges from 1 to 65535. <b>NOTE</b> This parameter is mandatory when <b>Forward to Same Port</b> is enabled for the associated backend server group. Minimum: <b>1</b> Maximum: <b>65535</b>
name	No	String	Specifies the health check name. Minimum: <b>0</b> Maximum: <b>255</b>
pool_id	Yes	String	Specifies the ID of the backend server group for which the health check is configured.
project_id	No	String	Specifies the project ID. Minimum: <b>1</b> Maximum: <b>32</b>
timeout	Yes	Integer	Specifies the maximum time required for waiting for a response from the health check, in seconds. It is recommended that you set the value less than that of parameter <b>delay</b> . Minimum: <b>1</b> Maximum: <b>50</b>

Parameter	Mandatory	Type	Description
type	Yes	String	<p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, or <b>HTTPS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> </ul>
url_path	No	String	<p>Specifies the HTTP request path for the health check. The value must start with a slash (/), and the default value is /. The value can contain letters, digits, hyphens (-), slashes (/), periods (.), percentage signs (%), question marks (?), pound signs (#), ampersand signs (&amp;), and the extended character set <code>_~!()*[]@\$^: ',+.</code></p> <p>Note: This parameter is available only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p> <p>Default: /</p> <p>Minimum: 1</p> <p>Maximum: 80</p>

## Response Parameters

Status code: 201



**Table 5-340** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
healthmonitor	<a href="#">HealthMonitor</a> object	Specifies the health check.

**Table 5-341** HealthMonitor

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the health check. <ul style="list-style-type: none"><li>• <b>true</b> (default) indicates that the health check is enabled.</li><li>• <b>false</b> indicates that the health check is disabled.</li></ul>
delay	Integer	Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> . Minimum: <b>1</b> Maximum: <b>50</b>
domain_name	String	Specifies the domain name that HTTP requests are sent to during the health check. The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter. The value is left blank by default, indicating that the virtual IP address of the load balancer is used as the destination address of HTTP requests. This parameter is available only when <b>type</b> is set to <b>HTTP</b> .
expected_codes	String	Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> . The value options are as follows: <ul style="list-style-type: none"><li>• A specific value, for example, 200</li><li>• A list of values that are separated with commas (,), for example, 200, 202</li><li>• A value range, for example, 200-204</li></ul> The default value is <b>200</b> . Multiple status codes can be queried in the format of <i>expected_codes=xxx&amp;expected_codes=xxx</i> .

Parameter	Type	Description
http_method	String	Specifies the HTTP method. The value can be <b>GET</b> , <b>HEAD</b> , <b>POST</b> , <b>PUT</b> , <b>DELETE</b> , <b>TRACE</b> , <b>OPTIONS</b> , <b>CONNECT</b> , or <b>PATCH</b> . The default value is <b>GET</b> .  This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> .  This parameter is unsupported. Please do not use it.
id	String	Specifies the health check ID.
max_retries	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> .  The value ranges from <b>1</b> to <b>10</b> Minimum: <b>1</b> Maximum: <b>10</b>
max_retries_own	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> .  The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> . Minimum: <b>1</b> Maximum: <b>10</b>
monitor_port	Integer	Specifies the port used for the health check. If this parameter is left blank, a port of the backend server will be used by default. The port number ranges from 1 to 65535.  Minimum: <b>1</b> Maximum: <b>65535</b>
name	String	Specifies the health check name.
pools	Array of <a href="#">PoolRef</a> objects	Lists the IDs of backend server groups for which the health check is configured. Only one ID will be returned.
project_id	String	Specifies the project ID.
timeout	Integer	Specifies the maximum time required for waiting for a response from the health check, in seconds. It is recommended that you set the value less than that of parameter <b>delay</b> .  Minimum: <b>1</b> Maximum: <b>50</b>

Parameter	Type	Description
type	String	<p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, or <b>HTTPS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> </ul>
url_path	String	<p>Specifies the HTTP request path for the health check. The value must start with a slash (/), and the default value is /. The value can contain letters, digits, hyphens (-), slashes (/), periods (.), percentage signs (%), question marks (?), pound signs (#), ampersand signs (&amp;), and the extended character set <code>_~!()*[]@\$^:'.+,</code>.</p> <p>Note: This parameter is available only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p>
created_at	String	<p>Specifies the time when the health check was configured. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the health check was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-342** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.

## Example Requests

Configuring a health check whose protocol is HTTP

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/healthmonitors
{
  "healthmonitor" : {
    "name" : "My Healthmonitor",
    "max_retries" : 3,
    "pool_id" : "488acc50-6bcf-423d-8f0a-0f4184f5b8a0",
    "type" : "HTTP",
    "timeout" : 30,
    "delay" : 1
  }
}
```

## Example Responses

**Status code: 201**

Normal response to POST requests.

```
{
  "request_id" : "0e837340-f1bd-4037-8f61-9923d0f0b19e",
  "healthmonitor" : {
    "monitor_port" : null,
    "id" : "c2b210b2-60c4-449d-91e2-9e9ea1dd7441",
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "domain_name" : null,
    "name" : "My Healthmonitor",
    "delay" : 1,
    "max_retries" : 3,
    "pools" : [ {
      "id" : "488acc50-6bcf-423d-8f0a-0f4184f5b8a0"
    } ],
    "admin_state_up" : true,
    "timeout" : 30,
    "type" : "HTTP",
    "expected_codes" : "200",
    "url_path" : "/",
    "http_method" : "GET"
  }
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.11.2 Querying Health Checks

### Function

This API is used to query all health checks.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/healthmonitors

**Table 5-343** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-344** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>This parameter must be used together with <b>limit</b>.</li><li>If this parameter is not specified, the first page will be queried.</li><li>This parameter cannot be left blank or set to an invalid ID.</li></ul>

Parameter	Mandatory	Type	Description
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>
id	No	Array	Specifies the health check ID. Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .
monitor_port	No	Array	Specifies the port used for the health check. Multiple ports can be queried in the format of <i>monitor_port=xxx&amp;monitor_port=xxx</i> .
domain_name	No	Array	Specifies the domain name to which HTTP requests are sent during the health check. The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter. Multiple domain names can be queried in the format of <i>domain_name=xxx&amp;domain_name=xxx</i> .

Parameter	Mandatory	Type	Description
name	No	Array	Specifies the health check name. Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .
delay	No	Array	Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> . Multiple intervals can be queried in the format of <i>delay=xxx&amp;delay=xxx</i> .
max_retries	No	Array	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . Multiple values can be queried in the format of <i>max_retries=xxx&amp;max_retries=xxx</i> .
admin_state_up	No	Boolean	Specifies the administrative status of the health check. The value can be <b>true</b> (health check is enabled) or <b>false</b> (health check is disabled).
max_retries_down	No	Array	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> . Multiple values can be queried in the format of <i>max_retries_down=xxx&amp;max_retries_down=xxx</i> .
timeout	No	Integer	Specifies the maximum time required for waiting for a response from the health check, in seconds.

Parameter	Mandatory	Type	Description
type	No	Array	<p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, or <b>HTTPS</b>.</p> <p>Multiple protocols can be queried in the format of <i>type=xxx&amp;type=xxx</i>.</p>
expected_codes	No	Array	<p>Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p> <p>The value options are as follows:</p> <ul style="list-style-type: none"> <li>• A specific value, for example, 200</li> <li>• A list of values that are separated with commas (,), for example, 200, 202</li> <li>• A value range, for example, 200-204</li> </ul> <p>The default value is <b>200</b>.</p> <p>Multiple status codes can be queried in the format of <i>expected_codes=xxx&amp;expected_codes=xxx</i>.</p>
url_path	No	Array	<p>Specifies the HTTP request path for the health check. The value must start with a slash (/), and the default value is /. This parameter is available only when <b>type</b> is set to <b>HTTP</b>.</p> <p>Multiple paths can be queried in the format of <i>url_path=xxx&amp;url_path=xxx</i>.</p>



Parameter	Mandatory	Type	Description
http_method	No	Array	<p>Specifies the HTTP method. The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT,</b> or <b>PATCH</b>.</p> <p>Multiple methods can be queried in the format of <i>http_method=xxx&amp;http_method=xxx</i>.</p> <p>This parameter is unsupported. Please do not use it.</p>
enterprise_project_id	No	Array	<p>Specifies the enterprise project ID.</p> <ul style="list-style-type: none"> <li>If this parameter is not passed, resources in the default enterprise project are queried, and authentication is performed based on the default enterprise project.</li> <li>If this parameter is passed, its value can be the ID of an existing enterprise project (resources in the specific enterprise project are required) or <b>all_granted_eps</b> (resources in all enterprise projects are queried).</li> </ul> <p>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i>.</p>

## Request Parameters

**Table 5-345** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-346** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<a href="#">PageInfo</a> object	Shows pagination information.
healthmonitors	Array of <a href="#">HealthMonitor</a> objects	Specifies the health check.

**Table 5-347** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

**Table 5-348** HealthMonitor

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the health check. <ul style="list-style-type: none"><li>• <b>true</b> (default) indicates that the health check is enabled.</li><li>• <b>false</b> indicates that the health check is disabled.</li></ul>
delay	Integer	Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> . Minimum: <b>1</b> Maximum: <b>50</b>

Parameter	Type	Description
domain_name	String	<p>Specifies the domain name that HTTP requests are sent to during the health check.</p> <p>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.</p> <p>The value is left blank by default, indicating that the virtual IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>This parameter is available only when <b>type</b> is set to <b>HTTP</b>.</p>
expected_codes	String	<p>Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p> <p>The value options are as follows:</p> <ul style="list-style-type: none"> <li>• A specific value, for example, 200</li> <li>• A list of values that are separated with commas (,), for example, 200, 202</li> <li>• A value range, for example, 200-204</li> </ul> <p>The default value is <b>200</b>. Multiple status codes can be queried in the format of <i>expected_codes=xxx&amp;expected_codes=xxx</i>.</p>
http_method	String	<p>Specifies the HTTP method. The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>. The default value is <b>GET</b>.</p> <p>This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p> <p>This parameter is unsupported. Please do not use it.</p>
id	String	Specifies the health check ID.
max_retries	Integer	<p>Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b>.</p> <p>The value ranges from <b>1</b> to <b>10</b></p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>10</b></p>

Parameter	Type	Description
max_retries_down	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> . Minimum: <b>1</b> Maximum: <b>10</b>
monitor_port	Integer	Specifies the port used for the health check. If this parameter is left blank, a port of the backend server will be used by default. The port number ranges from 1 to 65535. Minimum: <b>1</b> Maximum: <b>65535</b>
name	String	Specifies the health check name.
pools	Array of <a href="#">PoolRef</a> objects	Lists the IDs of backend server groups for which the health check is configured. Only one ID will be returned.
project_id	String	Specifies the project ID.
timeout	Integer	Specifies the maximum time required for waiting for a response from the health check, in seconds. It is recommended that you set the value less than that of parameter <b>delay</b> . Minimum: <b>1</b> Maximum: <b>50</b>

Parameter	Type	Description
type	String	<p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, or <b>HTTPS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• If the protocol of the backend server group is QUIC, the value can only be <b>UDP_CONNECT</b>.</li><li>• If the protocol of the backend server group is UDP, the value can only be <b>UDP_CONNECT</b>.</li><li>• If the protocol of the backend server group is TCP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li><li>• If the protocol of the backend server group is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li><li>• If the protocol of the backend server group is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li></ul>
url_path	String	<p>Specifies the HTTP request path for the health check. The value must start with a slash (/), and the default value is /. The value can contain letters, digits, hyphens (-), slashes (/), periods (.), percentage signs (%), question marks (?), pound signs (#), ampersand signs (&amp;), and the extended character set <code>_~!()*[]@\$^:'.+,</code>.</p> <p>Note: This parameter is available only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p>
created_at	String	<p>Specifies the time when the health check was configured. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the health check was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-349** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.

## Example Requests

Querying health checks

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/healthmonitors
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "healthmonitors": [ {
    "monitor_port": null,
    "id": "c2b210b2-60c4-449d-91e2-9e9ea1dd7441",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "domain_name": null,
    "name": "My Healthmonitor update",
    "delay": 10,
    "max_retries": 10,
    "pools": [ {
      "id": "488acc50-6bcf-423d-8f0a-0f4184f5b8a0"
    } ],
    "admin_state_up": true,
    "timeout": 30,
    "type": "HTTP",
    "expected_codes": "200",
    "url_path": "/",
    "http_method": "GET"
  }, {
    "monitor_port": null,
    "id": "cda1af03-0660-4fd2-8edf-e38c79846e08",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "domain_name": "akik.un.com",
    "name": "lijunqiu",
    "delay": 50,
    "max_retries": 1,
    "pools": [ {
      "id": "ae6e45ba-be84-4074-8ac6-bc4a56484809"
    } ],
    "admin_state_up": false,
    "timeout": 3,
    "type": "UDP_CONNECT",
    "expected_codes": null,
    "url_path": "/world",
    "http_method": null
  } ],
  "page_info": {
    "next_marker": "cda1af03-0660-4fd2-8edf-e38c79846e08",
    "previous_marker": "c2b210b2-60c4-449d-91e2-9e9ea1dd7441",
    "current_count": 2
  },
  "request_id": "814bc40e-8b0a-4ced-b8e5-f136c3e1df6a"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.11.3 Viewing Details of a Health Check

### Function

This API is used to view details of a health check.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/healthmonitors/{healthmonitor\_id}

**Table 5-350** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
healthmonitor_id	Yes	String	Specifies the health check ID.

### Request Parameters

**Table 5-351** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

**Status code: 200**

**Table 5-352** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
healthmonitor	<b>HealthMonitor</b> object	Specifies the health check.

**Table 5-353** HealthMonitor

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the health check. <ul style="list-style-type: none"><li>• <b>true</b> (default) indicates that the health check is enabled.</li><li>• <b>false</b> indicates that the health check is disabled.</li></ul>
delay	Integer	Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> . Minimum: <b>1</b> Maximum: <b>50</b>
domain_name	String	Specifies the domain name that HTTP requests are sent to during the health check. The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter. The value is left blank by default, indicating that the virtual IP address of the load balancer is used as the destination address of HTTP requests. This parameter is available only when <b>type</b> is set to <b>HTTP</b> .
expected_codes	String	Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> . The value options are as follows: <ul style="list-style-type: none"><li>• A specific value, for example, 200</li><li>• A list of values that are separated with commas (,), for example, 200, 202</li><li>• A value range, for example, 200-204</li></ul> The default value is <b>200</b> . Multiple status codes can be queried in the format of <i>expected_codes=xxx&amp;expected_codes=xxx</i> .



Parameter	Type	Description
http_method	String	Specifies the HTTP method. The value can be <b>GET</b> , <b>HEAD</b> , <b>POST</b> , <b>PUT</b> , <b>DELETE</b> , <b>TRACE</b> , <b>OPTIONS</b> , <b>CONNECT</b> , or <b>PATCH</b> . The default value is <b>GET</b> . This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> . This parameter is unsupported. Please do not use it.
id	String	Specifies the health check ID.
max_retries	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> Minimum: <b>1</b> Maximum: <b>10</b>
max_retries_down	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> . Minimum: <b>1</b> Maximum: <b>10</b>
monitor_port	Integer	Specifies the port used for the health check. If this parameter is left blank, a port of the backend server will be used by default. The port number ranges from 1 to 65535. Minimum: <b>1</b> Maximum: <b>65535</b>
name	String	Specifies the health check name.
pools	Array of <a href="#">PoolRef</a> objects	Lists the IDs of backend server groups for which the health check is configured. Only one ID will be returned.
project_id	String	Specifies the project ID.
timeout	Integer	Specifies the maximum time required for waiting for a response from the health check, in seconds. It is recommended that you set the value less than that of parameter <b>delay</b> . Minimum: <b>1</b> Maximum: <b>50</b>

Parameter	Type	Description
type	String	<p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, or <b>HTTPS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> </ul>
url_path	String	<p>Specifies the HTTP request path for the health check. The value must start with a slash (/), and the default value is /. The value can contain letters, digits, hyphens (-), slashes (/), periods (.), percentage signs (%), question marks (?), pound signs (#), ampersand signs (&amp;), and the extended character set <code>_~!()*[]@\$^: ',+.</code></p> <p>Note: This parameter is available only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p>
created_at	String	<p>Specifies the time when the health check was configured. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the health check was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-354** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.

## Example Requests

Querying details of a health check

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/healthmonitors/  
c2b210b2-60c4-449d-91e2-9e9ea1dd7441
```

## Example Responses

**Status code: 200**

Successful request.

```
{  
  "healthmonitor" : {  
    "monitor_port" : null,  
    "id" : "c2b210b2-60c4-449d-91e2-9e9ea1dd7441",  
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",  
    "domain_name" : null,  
    "name" : "My Healthmonitor update",  
    "delay" : 10,  
    "max_retries" : 10,  
    "pools" : [ {  
      "id" : "488acc50-6bcf-423d-8f0a-0f4184f5b8a0"  
    } ],  
    "admin_state_up" : true,  
    "timeout" : 30,  
    "type" : "HTTP",  
    "expected_codes" : "200",  
    "url_path" : "/",  
    "http_method" : "GET"  
  },  
  "request_id" : "3702e8f0-f5f0-4d35-9097-fc7160005fae"  
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.11.4 Updating a Health Check

### Function

This API is used to update a health check.

## Constraints

The health check can be updated only when the provisioning status of the associated load balancer is **ACTIVE**.

## Calling Method

For details, see [Calling APIs](#).

## URI

PUT /v3/{project\_id}/elb/healthmonitors/{healthmonitor\_id}

**Table 5-355** Path Parameters

Parameter	Mandatory	Type	Description
healthmonitor_id	Yes	String	Specifies the health check ID.
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-356** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-357** Request body parameters

Parameter	Mandatory	Type	Description
healthmonitor	Yes	<a href="#">UpdateHealthMonitorOption</a> object	Specifies the health check.

**Table 5-358** UpdateHealthMonitorOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the health check. <ul style="list-style-type: none"><li>• <b>true</b> (default): Health check is enabled.</li><li>• <b>false</b>: Health check is disabled.</li></ul>
delay	No	Integer	Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> . Minimum: <b>1</b> Maximum: <b>50</b>
domain_name	No	String	Specifies the domain name that HTTP requests are sent to during the health check. The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter. The value cannot be left blank, but can be specified as null or cannot be passed, indicating that the virtual IP address of the load balancer is used as the destination address of HTTP requests. This parameter is available only when <b>type</b> is set to <b>HTTP</b> . Minimum: <b>1</b> Maximum: <b>100</b>

Parameter	Mandatory	Type	Description
expected_codes	No	String	<p>Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p> <p>The value options are as follows:</p> <ul style="list-style-type: none"> <li>• A specific value, for example, 200</li> <li>• A list of values that are separated with commas (,), for example, 200, 202</li> <li>• A value range, for example, 200-204</li> </ul> <p>The default value is <b>200</b>. Multiple status codes can be queried in the format of <i>expected_codes=xxx&amp;expected_codes=xxx</i>.</p> <p>Minimum: <b>1</b> Maximum: <b>64</b></p>
http_method	No	String	<p>Specifies the HTTP method. The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>.</p> <p>This parameter will take effect only when <b>type</b> is set to <b>HTTP</b>.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>16</b></p>
max_retries	No	Integer	<p>Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b>.</p> <p>The value ranges from <b>1</b> to <b>10</b></p> <p>Minimum: <b>1</b> Maximum: <b>10</b></p>

Parameter	Mandatory	Type	Description
max_retries_down	No	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> . Minimum: <b>1</b> Maximum: <b>10</b>
monitor_port	No	Integer	Specifies the port used for the health check. This parameter cannot be left blank, but can be set to <b>null</b> , indicating that the port used by the backend server will be used. Minimum: <b>1</b> Maximum: <b>65535</b>
name	No	String	Specifies the health check name. Minimum: <b>0</b> Maximum: <b>255</b>
timeout	No	Integer	Specifies the maximum time required for waiting for a response from the health check, in seconds. It is recommended that you set the value less than that of parameter <b>delay</b> . Minimum: <b>1</b> Maximum: <b>50</b>

Parameter	Mandatory	Type	Description
url_path	No	String	<p>Specifies the HTTP request path for the health check. The value must start with a slash (/), and the default value is /. The value can contain letters, digits, hyphens (-), slashes (/), periods (.), percentage signs (%), question marks (?), pound signs (#), ampersand signs (&amp;), and the extended character set <code>_~!()*[]@\$^: ', +</code>.</p> <p>Note: This parameter is available only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p> <p>Minimum: <b>1</b> Maximum: <b>80</b></p>
type	No	String	<p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, or <b>HTTPS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• If the protocol of the backend server group is QUIC, the value can only be <b>UDP_CONNECT</b>.</li><li>• If the protocol of the backend server group is UDP, the value can only be <b>UDP_CONNECT</b>.</li><li>• If the protocol of the backend server group is TCP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li><li>• If the protocol of the backend server group is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li><li>• If the protocol of the backend server group is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li></ul>

## Response Parameters

Status code: 200



**Table 5-359** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
healthmonitor	<a href="#">HealthMonitor</a> object	Specifies the health check.

**Table 5-360** HealthMonitor

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the health check. <ul style="list-style-type: none"><li>• <b>true</b> (default) indicates that the health check is enabled.</li><li>• <b>false</b> indicates that the health check is disabled.</li></ul>
delay	Integer	Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> . Minimum: <b>1</b> Maximum: <b>50</b>
domain_name	String	Specifies the domain name that HTTP requests are sent to during the health check. The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter. The value is left blank by default, indicating that the virtual IP address of the load balancer is used as the destination address of HTTP requests. This parameter is available only when <b>type</b> is set to <b>HTTP</b> .
expected_codes	String	Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> . The value options are as follows: <ul style="list-style-type: none"><li>• A specific value, for example, 200</li><li>• A list of values that are separated with commas (,), for example, 200, 202</li><li>• A value range, for example, 200-204</li></ul> The default value is <b>200</b> . Multiple status codes can be queried in the format of <i>expected_codes=xxx&amp;expected_codes=xxx</i> .

Parameter	Type	Description
http_method	String	Specifies the HTTP method. The value can be <b>GET</b> , <b>HEAD</b> , <b>POST</b> , <b>PUT</b> , <b>DELETE</b> , <b>TRACE</b> , <b>OPTIONS</b> , <b>CONNECT</b> , or <b>PATCH</b> . The default value is <b>GET</b> .  This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> .  This parameter is unsupported. Please do not use it.
id	String	Specifies the health check ID.
max_retries	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> .  The value ranges from <b>1</b> to <b>10</b> Minimum: <b>1</b> Maximum: <b>10</b>
max_retries_own	Integer	Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> .  The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> . Minimum: <b>1</b> Maximum: <b>10</b>
monitor_port	Integer	Specifies the port used for the health check. If this parameter is left blank, a port of the backend server will be used by default. The port number ranges from 1 to 65535.  Minimum: <b>1</b> Maximum: <b>65535</b>
name	String	Specifies the health check name.
pools	Array of <a href="#">PoolRef</a> objects	Lists the IDs of backend server groups for which the health check is configured. Only one ID will be returned.
project_id	String	Specifies the project ID.
timeout	Integer	Specifies the maximum time required for waiting for a response from the health check, in seconds. It is recommended that you set the value less than that of parameter <b>delay</b> .  Minimum: <b>1</b> Maximum: <b>50</b>

Parameter	Type	Description
type	String	<p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, or <b>HTTPS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server group is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> </ul>
url_path	String	<p>Specifies the HTTP request path for the health check. The value must start with a slash (/), and the default value is /. The value can contain letters, digits, hyphens (-), slashes (/), periods (.), percentage signs (%), question marks (?), pound signs (#), ampersand signs (&amp;), and the extended character set <code>_~!()*[]@\$^: ',+.</code></p> <p>Note: This parameter is available only when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b>.</p>
created_at	String	<p>Specifies the time when the health check was configured. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the health check was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-361** PoolRef

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.

## Example Requests

Modifying the interval between health checks

```
PUT https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/healthmonitors/  
c2b210b2-60c4-449d-91e2-9e9ea1dd7441
```

```
{  
  "healthmonitor" : {  
    "name" : "My Healthmonitor update",  
    "max_retries" : 10,  
    "delay" : 10  
  }  
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{  
  "request_id" : "08d6ffea-d092-4cfa-860a-e364f3bef1be",  
  "healthmonitor" : {  
    "monitor_port" : null,  
    "id" : "c2b210b2-60c4-449d-91e2-9e9ea1dd7441",  
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",  
    "domain_name" : null,  
    "name" : "My Healthmonitor update",  
    "delay" : 10,  
    "max_retries" : 10,  
    "pools" : [ {  
      "id" : "488acc50-6bcf-423d-8f0a-0f4184f5b8a0"  
    } ],  
    "admin_state_up" : true,  
    "timeout" : 30,  
    "type" : "HTTP",  
    "expected_codes" : "200",  
    "url_path" : "/",  
    "http_method" : "GET"  
  }  
}
```

## Status Codes

Status Code	Description
200	Successful request.
400	Invalid request body or request parameters.
403	Failed to verify the token.
404	The queried resource does not exist.

Status Code	Description
409	A conflict occurred.
431	The request headers are too large.
494	The request header or cookie is too large.
500	A service error occurred.

## Error Codes

See [Error Codes](#).

## 5.11.5 Deleting a Health Check

### Function

This API is used to delete a health check.

### Constraints

The health check can be deleted only when the provisioning status of the associated load balancer is **ACTIVE**.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/healthmonitors/{healthmonitor\_id}

**Table 5-362** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
healthmonitor_id	Yes	String	Specifies the health check ID.

## Request Parameters

**Table 5-363** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

None

## Example Requests

Deleting a health check

```
DELETE https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/healthmonitors/  
c2b210b2-60c4-449d-91e2-9e9ea1dd7441
```

## Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

# 5.12 Forwarding Policy

## 5.12.1 Adding a Forwarding Policy

### Function

This API is used to add a forwarding policy to a listener.

### Constraints

Forwarding policies can be added to only to HTTP or HTTPS listeners.

## Calling Method

For details, see [Calling APIs](#).

## URI

POST /v3/{project\_id}/elb/l7policies

**Table 5-364** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-365** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-366** Request body parameters

Parameter	Mandatory	Type	Description
l7policy	Yes	<a href="#">CreateL7PolicyOption</a> object	Specifies the forwarding policy.

**Table 5-367** CreateL7PolicyOption

Parameter	Mandatory	Type	Description
action	Yes	String	<p>Specifies where requests will be forwarded. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>REDIRECT_TO_POOL:</b> Requests will be forwarded to another backend server group.</li><li>• <b>REDIRECT_TO_LISTENER:</b> Requests will be redirected to an HTTPS listener.</li><li>• <b>REDIRECT_TO_URL:</b> Requests will be redirected to another URL.</li><li>• <b>FIXED_RESPONSE:</b> A fixed response body will be returned.</li></ul> <p><b>REDIRECT_TO_LISTENER</b> has the highest priority. If requests are to be redirected to an HTTPS listener, other forwarding policies of the listener will become invalid.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, the listener's protocol must be HTTP or HTTPS.</li><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the listener's protocol must be HTTP.</li></ul> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>
admin_state_up	No	Boolean	<p>Specifies the administrative status of the forwarding policy. The default value is <b>true</b>.</p> <p>This parameter is unsupported. Please do not use it.</p>



Parameter	Mandatory	Type	Description
description	No	String	Provides supplementary information about the forwarding policy. Minimum: <b>0</b> Maximum: <b>255</b>
listener_id	Yes	String	Specifies the ID of the listener to which the forwarding policy is added. <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, the forwarding policy can be added to an HTTP or HTTPS listener.</li><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the forwarding policy can be added to an HTTP listener.</li></ul>
name	No	String	Specifies the forwarding policy name. Minimum: <b>0</b> Maximum: <b>255</b>
position	No	Integer	Specifies the forwarding policy priority. The value cannot be updated. This parameter is unsupported. Please do not use it. Minimum: <b>1</b> Maximum: <b>100</b>

Parameter	Mandatory	Type	Description
priority	No	Integer	<p>Specifies the forwarding policy priority. A smaller value indicates a higher priority. The value must be unique for each forwarding policy of the same listener.</p> <p>This parameter is available only for dedicated load balancers and will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the value can only be <b>0</b>, indicating that <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>false</b>, forwarding policies are automatically prioritized based on the original sorting logic. Forwarding policy priorities are independent of each other regardless of domain names. If forwarding policies use the same domain name, their priorities follow the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If prefix match is used for matching, the longer the path, the higher the priority. If a forwarding policy contains only a domain name without a path specified, the path is <b>/</b>, and prefix match is used by default.</li></ul>

Parameter	Mandatory	Type	Description
			<ul style="list-style-type: none"> <li>If <b>enhance_l7policy_enable</b> is set to <b>true</b> and this parameter is not passed, the priority will set to a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. There will be two cases:               <ol style="list-style-type: none"> <li>If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to create because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, please specify a value or adjust the priorities of existing forwarding policies.</li> <li>If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li> </ol>               For shared load balancers, this parameter is unsupported.                Minimum: <b>0</b>                Maximum: <b>10000</b> </li> </ul>
project_id	No	String	Specifies the ID of the project where the forwarding policy is used. Minimum: <b>1</b> Maximum: <b>32</b>

Parameter	Mandatory	Type	Description
redirect_listener_id	No	String	<p>Specifies the ID of the listener to which requests are redirected. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• The listener's protocol must be HTTPS.</li><li>• A listener added to another load balancer is not allowed.</li><li>• This parameter cannot be passed in the API for adding or updating a forwarding policy if <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</li><li>• This parameter is unsupported for shared load balancers.</li></ul>
redirect_pool_id	No	String	<p>Specifies the ID of the backend server group to which the requests are forwarded. This parameter is valid only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</li></ul>
redirect_url	No	String	<p>Specifies the URL to which requests are forwarded.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>255</b></p>

Parameter	Mandatory	Type	Description
redirect_url_config	No	CreateRedirectUrlConfig object	<p>Specifies the URL to which requests are forwarded.</p> <p>For dedicated load balancers, this parameter will take effect only when advanced forwarding is enabled (<b>enhance_l7policy_enable</b> is set to <b>true</b>). If it is passed when <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_URL</b>. It cannot be specified if the value of <b>action</b> is not <b>REDIRECT_TO_URL</b>.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>At least one of the four parameters (<b>protocol</b>, <b>host</b>, <b>port</b>, and <b>path</b>) must be passed, or their values cannot be set to <b>\${xxx}</b> at the same time. (<b>\${xxx}</b> indicates that the value in the request will be inherited. For example, <b>\${host}</b> indicates the host in the URL to be redirected.) The values of <b>protocol</b> and <b>port</b> cannot be the same as those of the associated listener, and either <b>host</b> or <b>path</b> must be passed or their values cannot be <b>\${xxx}</b> at the same time. For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
redirect_pools_config	No	Array of CreateRedirectPoolsConfig objects	<p>Specifies the backend server groups that requests are forwarded to. A maximum of 5 backend server groups can be configured for a forwarding policy.</p>

Parameter	Mandatory	Type	Description
redirect_pools_sticky_session_config	No	<a href="#">CreateRedirectPoolsStickySessionConfig</a> object	<p>Specifies whether to enable sticky session for backend server groups configured for a forwarding policy. The load balancer generates a cookie after it receives a request from a client. All subsequent requests with the same cookie are routed to the same backend server groups.</p> <p>This parameter is unsupported for shared load balancers. If it is passed, an error will be returned.</p>
fixed_response_config	No	<a href="#">CreateFixedResponseConfig</a> object	<p>Specifies the configuration of the page that will be returned. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>FIXED_RESPONSE</b>. It cannot be specified if the value of <b>action</b> is not <b>FIXED_RESPONSE</b>.</p> <p>For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
redirect_pools_extend_config	No	<a href="#">CreateRedirectPoolsExtendConfig</a> object	<p>Specifies the backend server group that the requests are forwarded to. This parameter is valid only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</p>

Parameter	Mandatory	Type	Description
rules	No	Array of <a href="#">CreateL7PolicyRuleOption</a> objects	<p>Lists the forwarding rules in the forwarding policy.</p> <p>The list can contain a maximum of 10 forwarding rules (if <b>conditions</b> is specified, a condition is considered as a rule).</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. Note:</p> <ul style="list-style-type: none"> <li>• The entire list will be replaced if you update it.</li> <li>• If the action of <b>17policy</b> is set to <b>Redirect to another listener</b>, <b>17rule</b> cannot be created.</li> </ul>

**Table 5-368** CreateRedirectUrlConfig

Parameter	Mandatory	Type	Description
protocol	No	String	<p>Specifies the protocol for redirection.</p> <p>The value can be <b>HTTP</b>, <b>HTTPS</b>, or <b>\${protocol}</b>. The default value is <b>\${protocol}</b>, indicating that the protocol of the request will be used.</p> <p>Default: <b>\${protocol}</b></p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>36</b></p>
host	No	String	<p>Specifies the host name that requests are redirected to. The value can contain only letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. The default value is <b>\${host}</b>, indicating that the host of the request will be used.</p> <p>Default: <b>\${host}</b></p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
port	No	String	<p>Specifies the port that requests are redirected to. The default value is <b>port</b>, indicating that the port of the request will be used.</p> <p>Default: <b>port</b> Minimum: <b>1</b> Maximum: <b>16</b></p>
path	No	String	<p>Specifies the path that requests are redirected to. The default value is <b>path</b>, indicating that the path of the request will be used.</p> <p>The value can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.+?=:/()[]{}</code> and must start with a slash (/). <code>\$1</code> and <code>\$2</code> match the wildcard asterisk (*) in the request URL.</p> <p>Default: <b>path</b> Minimum: <b>1</b> Maximum: <b>128</b></p>



Parameter	Mandatory	Type	Description
query	No	String	<p>Specifies the query string set in the URL for redirection. The default value is <b>#{query}</b>, indicating that the query string of the request will be used.</p> <p>For example, in the URL <b>https://www.example.com:8080/elb?type=loadbalancer, #{query}</b> indicates <b>type=loadbalancer</b>. If this parameter is set to <b>#{query}&amp;name=my_name</b>, the URL will be redirected to <b>https://www.example.com:8080/elb?type=loadbalancer&amp;name=my_name</b>.</p> <p>The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'()*+,-./:;=?@^_`.\$1 and \$2 match the wildcard asterisk (*)</code> in the request URL.</p> <p>Default: <b>#{query}</b> Minimum: <b>0</b> Maximum: <b>128</b></p>
status_code	Yes	String	<p>Specifies the status code returned after the requests are redirected.</p> <p>The value can be <b>301, 302, 303, 307, or 308</b>.</p> <p>Minimum: <b>1</b> Maximum: <b>16</b></p>
insert_headers_config	No	<a href="#">CreateInsertHeadersConfig</a> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	No	<a href="#">CreateRemoveHeadersConfig</a> object	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-369** CreateRedirectPoolsConfig

Parameter	Mandatory	Type	Description
pool_id	Yes	String	Specifies the ID of the backend server group.
weight	No	String	Specifies the weight of the backend server group. The value ranges from <b>1</b> (default) to <b>100</b> . Requests are routed to backend server groups based on their weights. Backend server groups with higher weights receive proportionately more requests. No requests will be routed to a backend server group with a weight of 0. Default: <b>1</b>

**Table 5-370** CreateRedirectPoolsStickySessionConfig

Parameter	Mandatory	Type	Description
enable	No	Boolean	Specifies whether to enable sticky session for backend server groups configured in a forwarding policy. The default value is <b>false</b> , indicating that sticky session is disabled. Default: <b>false</b>
timeout	No	Integer	Specifies the duration that a session persists. The value ranges from <b>1</b> to <b>1440</b> (default), in minutes.

**Table 5-371** CreateFixedResponseConfig

Parameter	Mandatory	Type	Description
status_code	Yes	String	Specifies the fixed HTTP status code configured in the forwarding rule. The value can be any integer in the range of 200–299, 400–499, or 500–599. Minimum: <b>1</b> Maximum: <b>16</b>
content_type	No	String	Specifies the format of the response body. The value can be <b>text/plain</b> , <b>text/css</b> , <b>text/html</b> , <b>application/javascript</b> , or <b>application/json</b> . The default value is <b>text/plain</b> . Minimum: <b>0</b> Maximum: <b>32</b>
message_body	No	String	Specifies the content of the response message body. Minimum: <b>0</b> Maximum: <b>1024</b>
insert_headers_config	No	<b>CreateInsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	No	<b>CreateRemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	No	<b>CreateTrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-372** CreateRedirectPoolsExtendConfig

Parameter	Mandatory	Type	Description
rewrite_url_enable	No	Boolean	Specifies whether to set <b>rewrite_url_enable</b> to <b>true</b> .

Parameter	Mandatory	Type	Description
rewrite_url_config	No	<a href="#">CreateRewriteUrlConfig</a> object	Specifies the URL for the backend server group that requests are forwarded to. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
insert_headers_config	No	<a href="#">CreateInsertHeadersConfig</a> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	No	<a href="#">CreateRemoveHeadersConfig</a> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	No	<a href="#">CreateTrafficLimitConfig</a> object	Specifies how requests are limited.

**Table 5-373** CreateRewriteUrlConfig

Parameter	Mandatory	Type	Description
host	No	String	Specifies the rewritten host that requests are redirected to. The string can contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.  The default value is <b>\${host}</b> , indicating that the host of the request will be used.

Parameter	Mandatory	Type	Description
path	No	String	<p>Specifies the path that requests are redirected to.</p> <p>The value can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.+?=/\ /()</code> and must start with a slash (<code>/</code>). <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (<code>*</code>) in the request URL. If the number of regular expression match groups is less than the specified number, <b><code>\${path}</code></b> is empty. If the dollar sign (<code>\$</code>) is followed by a letter, the matching result is empty until the next special character appears, for example, <b><code>\$abc#123</code></b>, and the matching result is <b><code>#123</code></b>. If the dollar sign (<code>\$</code>) is followed by a special character, for example, <b><code>\$#</code></b>, the matching result is <b><code>#</code></b>.</p> <p>The default value is <b><code>\${path}</code></b>, indicating that the path of the request will be used.</p>

Parameter	Mandatory	Type	Description
query	No	String	Specifies the query string set in the URL for redirection. The value is case-sensitive and can contain only letters, digits, and special characters !\$&'() +, -./:;=?@^_` \$1, \$2, \$3, and all the way to \$9 match the wildcard asterisk (*) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b> , and the matching result is <b>#123</b> . If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b> , the matching result is <b>#</b> . The default value is <b>`\${query}</b> , indicating that the query string of the request will be used.

**Table 5-374** CreateInsertHeadersConfig

Parameter	Mandatory	Type	Description
configs	Yes	Array of <b>CreateInsertHeaderConfig</b> objects	Specifies the headers you want to write into the request that matches the condition.

**Table 5-375** CreateInsertHeaderConfig

Parameter	Mandatory	Type	Description
key	Yes	String	Specifies the key of the header you want to write into the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.
value_type	Yes	String	Specifies the value type. The value can be <b>USER_DEFINED</b> , <b>REFERENCE_HEADER</b> , or <b>SYSTEM_DEFINED</b> .
value	Yes	String	Specifies the value of the header. If <b>value_type</b> is set to <b>SYSTEM_DEFINED</b> , the value can be <b>CLIENT-PORT</b> , <b>CLIENT-IP</b> , <b>ELB-PROTOCOL</b> , <b>ELB-ID</b> , <b>ELB-PORT</b> , <b>ELB-EIP</b> , or <b>ELB-VIP</b> .  The value can contain 1 to 128 characters. ASCII codes 32 through 127 printable characters, asterisk (*), and question mark (?) are also supported. The value cannot start or end with a space.

**Table 5-376** CreateRemoveHeadersConfig

Parameter	Mandatory	Type	Description
configs	Yes	Array of <a href="#">CreateRemoveHeaderConfig</a> objects	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-377** CreateRemoveHeaderConfig

Parameter	Mandatory	Type	Description
key	Yes	String	Specifies the key of the header you want to remove from the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.

**Table 5-378** CreateTrafficLimitConfig

Parameter	Mandatory	Type	Description
qps	No	Integer	Specifies the maximum number of queries per second (QPS). The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. Minimum: <b>0</b> Maximum: <b>100000</b>



Parameter	Mandatory	Type	Description
per_source_ip_qps	No	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. This parameter is not available for QUIC listeners. The value can be <b>0</b> or <b>null</b> . The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. If <b>qps</b> is not set to <b>0</b> , <b>per_source_ip_qps</b> must be specified a smaller value than <b>qps</b> . Minimum: <b>0</b> Maximum: <b>100000</b>
burst	No	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. The value ranges from <b>0</b> to <b>1,00,000</b> . If the number of requests exceeds the value specified for <b>qps</b> but not reaches the value specified for <b>burst</b> , 503 status code will not be returned. Minimum: <b>0</b> Maximum: <b>100000</b>

**Table 5-379** CreateL7PolicyRuleOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the forwarding rule. The value can be <b>true</b> or <b>false</b> , and the default value is <b>true</b> . This parameter is unsupported. Please do not use it. Default: <b>true</b>

Parameter	Mandatory	Type	Description
type	Yes	String	<p>Specifies the type of the forwarding rule. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>HOST_NAME</b>: A domain name will be used for matching.</li><li>• <b>PATH</b>: A URL will be used for matching.</li><li>• <b>METHOD</b>: An HTTP request method will be used for matching.</li><li>• <b>HEADER</b>: The request header will be used for matching.</li><li>• <b>QUERY_STRING</b>: A query string will be used for matching.</li><li>• <b>SOURCE_IP</b>: The source IP address will be used for matching.</li><li>• <b>COOKIE</b>: A cookie will be used for matching.</li></ul> <p>Note:</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, multiple forwarding rules can be created for each type.</p>

Parameter	Mandatory	Type	Description
compare_type	Yes	String	<p>Specifies how requests are matched with the forwarding rule. Values:</p> <ul style="list-style-type: none"><li>• <b>EQUAL_TO</b>: exact match.</li><li>• <b>REGEX</b>: regular expression match</li><li>• <b>STARTS_WITH</b>: prefix match</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can only be <b>EQUAL_TO</b>, and asterisks (*) can be used as wildcard characters.</li><li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>METHOD</b> or <b>SOURCE_IP</b>, the value can only be <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, the value can only be <b>EQUAL_TO</b>, asterisks (*) and question marks (?) can be used as wildcard characters.</li></ul>
invert	No	Boolean	<p>Specifies whether reverse matching is supported. The value can be <b>true</b> or <b>false</b>, and the default value is <b>false</b>.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Default: <b>false</b></p>
key	No	String	<p>Specifies the key of the match item. For example, if an HTTP header is used for matching, <b>key</b> is the name of the HTTP header parameter.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b> Maximum: <b>255</b></p>

Parameter	Mandatory	Type	Description
value	Yes	String	<p>Specifies the value of the match item. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter will take effect only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>• If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~' ;@^-%#&amp;\$. * +?,=!:  \ ( ) [ ] { }</code></li> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
conditions	No	Array of <a href="#">CreateRuleCondition</a> objects	<p>Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b>.</p> <p>If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.</p> <p>Array Length: <b>0 - 10</b></p>

**Table 5-380** CreateRuleCondition

Parameter	Mandatory	Type	Description
key	No	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({ }), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li></ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
value	Yes	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (), <i>and must start with a letter, digit, or asterisk (^)</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li><li>• If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+? ,=!: /() [] {}</code></li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the</li></ul>

Parameter	Mandatory	Type	Description
			<p>query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET, PUT, POST, DELETE, PATCH, HEAD, or OPTIONS</b>.</li> <li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4 or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.]</li> </ul> <p>All values of the condition list in a forwarding rule must be unique.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

## Response Parameters

Status code: 201



**Table 5-381** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
l7policy	<b>L7Policy</b> object	Specifies the forwarding policy.

**Table 5-382** L7Policy

Parameter	Type	Description
action	String	<p>Specifies where requests will be forwarded. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>REDIRECT_TO_POOL</b>: Requests will be forwarded to another backend server group.</li><li>• <b>REDIRECT_TO_LISTENER</b>: Requests will be redirected to an HTTPS listener.</li><li>• <b>REDIRECT_TO_URL</b>: Requests will be redirected to another URL.</li><li>• <b>FIXED_RESPONSE</b>: A fixed response body will be returned.</li></ul> <p><b>REDIRECT_TO_LISTENER</b> has the highest priority. If requests are to be redirected to an HTTPS listener, other forwarding policies of the listener will become invalid.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, the listener's protocol must be HTTP, HTTPS, or TERMINATED_HTTPS.</li><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the listener's protocol must be HTTP.</li></ul>
admin_state_up	Boolean	<p>Specifies the administrative status of the forwarding policy. The default value is <b>true</b>.</p> <p>This parameter is unsupported. Please do not use it.</p>
description	String	Provides supplementary information about the forwarding policy.
id	String	Specifies the forwarding policy ID.
listener_id	String	Specifies the ID of the listener to which the forwarding policy is added.

Parameter	Type	Description
name	String	Specifies the forwarding policy name. Minimum: <b>1</b> Maximum: <b>255</b>
position	Integer	Specifies the forwarding policy priority. This parameter cannot be updated. This parameter is unsupported. Please do not use it. Minimum: <b>1</b> Maximum: <b>100</b>

Parameter	Type	Description
priority	Integer	<p>Specifies the forwarding policy priority. A smaller value indicates a higher priority. The value must be unique for each forwarding policy of the same listener.</p> <p>This parameter is available only for dedicated load balancers and will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <ul style="list-style-type: none"> <li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the value can only be <b>0</b>, indicating that <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li> <li>• If <b>enhance_l7policy_enable</b> is set to <b>false</b>, forwarding policies are automatically prioritized based on the original sorting logic. Forwarding policy priorities are independent of each other regardless of domain names. If forwarding policies use the same domain name, their priorities follow the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If prefix match is used for matching, the longer the path, the higher the priority. If a forwarding policy contains only a domain name without a path specified, the path is <b>/</b>, and prefix match is used by default.</li> <li>• If <b>enhance_l7policy_enable</b> is set to <b>true</b> and this parameter is not passed, the priority will set to a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. There will be two cases: <ul style="list-style-type: none"> <li>a) If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to create because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, please specify a value or adjust the priorities of existing forwarding policies.</li> <li>b) If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li> </ul> </li> </ul>

Parameter	Type	Description
		For shared load balancers, this parameter is unsupported.
project_id	String	Specifies the project ID of the forwarding policy.
provisioning_status	String	Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> or <b>ERROR</b> . <ul style="list-style-type: none"><li>• <b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li><li>• <b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li></ul>
redirect_pool_id	String	Specifies the ID of the backend server group that requests will be forwarded to. This parameter is valid and mandatory only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
redirect_listener_id	String	Specifies the ID of the listener to which requests are redirected. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> . Note: <ul style="list-style-type: none"><li>• The listener's protocol must be HTTPS or TERMINATED_HTTPS.</li><li>• A listener added to another load balancer is not allowed.</li><li>• This parameter cannot be passed in the API for adding or updating a forwarding policy if <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</li></ul>
redirect_url	String	Specifies the URL to which requests are forwarded. Format: <i>protocol://host:port/path?query</i> This parameter is unsupported. Please do not use it.
rules	Array of <b>RuleRef</b> objects	Lists the forwarding rules in the forwarding policy.

Parameter	Type	Description
redirect_url_config	<a href="#">RedirectUrlConfig</a> object	<p>Specifies the URL to which requests are forwarded.</p> <p>For dedicated load balancers, this parameter will take effect only when advanced forwarding is enabled (<b>enhance_l7policy_enable</b> is set to <b>true</b>). If it is passed when <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_URL</b>. It cannot be specified if the value of <b>action</b> is not <b>REDIRECT_TO_URL</b>.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>At least one of the four parameters (<b>protocol</b>, <b>host</b>, <b>port</b>, and <b>path</b>) must be passed, or their values cannot be set to <b>\${xxx}</b> at the same time. (<b>\${xxx}</b> indicates that the value in the request will be inherited. For example, <b>\${host}</b> indicates the host in the URL to be redirected.) The values of <b>protocol</b> and <b>port</b> cannot be the same as those of the associated listener, and either <b>host</b> or <b>path</b> must be passed or their values cannot be <b>\${xxx}</b> at the same time. For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
redirect_pools_config	Array of <a href="#">RedirectPoolsConfig</a> objects	Specifies the backend server groups that requests are forwarded to. A maximum of 5 backend server groups can be configured for a forwarding policy.
redirect_pools_sticky_session_config	<a href="#">RedirectPoolsStickySessionConfig</a> object	<p>Specifies whether to enable sticky session for backend server groups configured for a forwarding policy. The load balancer generates a cookie after it receives a request from a client. All subsequent requests with the same cookie are routed to the same backend server groups.</p> <p>This parameter is unsupported for shared load balancers. If it is passed, an error will be returned.</p>
redirect_pools_extend_config	<a href="#">RedirectPoolsExtendConfig</a> object	Specifies the backend server group that the requests are forwarded to. This parameter is valid only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .

Parameter	Type	Description
fixed_response_config	<b>FixedResponseConfig</b> object	<p>Specifies the configuration of the page that will be returned. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>FIXED_RESPONSE</b>. It cannot be specified if the value of <b>action</b> is not <b>FIXED_RESPONSE</b>.</p> <p>For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
created_at	String	<p>Specifies the time when the forwarding policy was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the forwarding policy was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-383** RuleRef

Parameter	Type	Description
id	String	Specifies the forwarding rule ID.

**Table 5-384** RedirectUrlConfig

Parameter	Type	Description
protocol	String	Specifies the protocol for redirection. The value can be <b>HTTP</b> , <b>HTTPS</b> , or <b>\${protocol}</b> . The default value is <b>\${protocol}</b> , indicating that the protocol of the request will be used. Minimum: <b>1</b> Maximum: <b>36</b>
host	String	Specifies the host name that requests are redirected to. The value can contain only letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. The default value is <b>\${host}</b> , indicating that the host of the request will be used. Default: <b>\${host}</b> Minimum: <b>1</b> Maximum: <b>128</b>
port	String	Specifies the port that requests are redirected to. The default value is <b>\${port}</b> , indicating that the port of the request will be used. Default: <b>\${port}</b> Minimum: <b>1</b> Maximum: <b>16</b>
path	String	Specifies the path that requests are redirected to. The default value is <b>\${path}</b> , indicating that the path of the request will be used. The value can contain only letters, digits, and special characters <code>_-'@^-%#&amp;\$.*+?,=!: /()[]{} </code> and must start with a slash (/). Default: <b>\${path}</b> Minimum: <b>1</b> Maximum: <b>128</b>

Parameter	Type	Description
query	String	<p>Specifies the query string set in the URL for redirection. The default value is <b>#{query}</b>, indicating that the query string of the request will be used.</p> <p>For example, in the URL <b>https://www.example.com:8080/elb?type=loadbalancer, #{query}</b> indicates <b>type=loadbalancer</b>. If this parameter is set to <b>#{query}&amp;name=my_name</b>, the URL will be redirected to <b>https://www.example.com:8080/elb?type=loadbalancer&amp;name=my_name</b>.</p> <p>The value is case-sensitive and can contain only letters, digits, and special characters ! \$&amp;'()*+,-./:;=?@^_`</p> <p>Default: <b>#{query}</b></p> <p>Minimum: <b>0</b></p> <p>Maximum: <b>128</b></p>
status_code	String	<p>Specifies the status code returned after the requests are redirected.</p> <p>The value can be <b>301, 302, 303, 307, or 308</b>.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>16</b></p>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-385** RedirectPoolsConfig

Parameter	Type	Description
pool_id	String	Specifies the ID of the backend server group.



Parameter	Type	Description
weight	Integer	Specifies the weight of the backend server group. The value ranges from <b>0</b> to <b>100</b> . Requests are routed to backend server groups based on their weights. Backend server groups with higher weights receive proportionately more requests. No requests will be routed to a backend server group with a weight of 0.  Minimum: <b>0</b> Maximum: <b>100</b>

**Table 5-386** RedirectPoolsStickySessionConfig

Parameter	Type	Description
enable	Boolean	Specifies whether to enable sticky session for backend server groups configured in a forwarding policy. The default value is <b>false</b> , indicating that sticky session is disabled.  Default: <b>false</b>
timeout	Integer	Specifies the duration that a session persists. The value ranges from <b>1</b> to <b>1440</b> (default), in minutes.

**Table 5-387** RedirectPoolsExtendConfig

Parameter	Type	Description
rewrite_url_enable	Boolean	Specifies whether to set <b>rewrite_url_enable</b> to <b>true</b> .
rewrite_url_config	<b>RewriteUrlConfig</b> object	Specifies the URL for the backend server group that requests are forwarded to. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-388** RewriteUrlConfig

Parameter	Type	Description
host	String	<p>Specifies the domain name that requests are redirected to. The domain name can contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</p> <p>The default value is <b>`\${host}</b>, indicating that the host of the request will be used.</p>
path	String	<p>Specifies the path that requests are redirected to.</p> <p>The value can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.+?=: \/()</code> and must start with a slash (/). <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (<code>*</code>) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>`\${123}</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>`\${#}</b>.</p> <p>The default value is <b>`\${path}</b>, indicating that the path of the request will be used.</p>
query	String	<p>Specifies the query string set in the URL for redirection. The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'()*+,-./:;=?@^_`</code>. <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (<code>*</code>) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>`\${123}</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>`\${#}</b>.</p> <p>The default value is <b>`\${query}</b>, indicating that the query string of the request will be used.</p>

**Table 5-389** FixtedResponseConfig

Parameter	Type	Description
status_code	String	Specifies the HTTP status code configured in the forwarding policy. The value can be any integer in the range of 200–299, 400–499, or 500–599.  Minimum: <b>1</b> Maximum: <b>16</b>
content_type	String	Specifies the format of the response body. The value can be <b>text/plain</b> , <b>text/css</b> , <b>text/html</b> , <b>application/javascript</b> , or <b>application/json</b> .  Minimum: <b>0</b> Maximum: <b>32</b>
message_body	String	Specifies the content of the response message body.  Minimum: <b>0</b> Maximum: <b>1024</b>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-390** InsertHeadersConfig

Parameter	Type	Description
configs	Array of <b>InsertHeaderConfig</b> objects	Specifies the headers you want to write into the request that matches the condition.

**Table 5-391** InsertHeaderConfig

Parameter	Type	Description
key	String	Specifies the key of the header you want to write into the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.
value_type	String	Specifies the value type. The value can be <b>USER_DEFINED</b> , <b>REFERENCE_HEADER</b> , or <b>SYSTEM_DEFINED</b> .
value	String	Specifies the value of the header. If <b>value_type</b> is set to <b>SYSTEM_DEFINED</b> , the value can be <b>CLIENT-PORT</b> , <b>CLIENT-IP</b> , <b>ELB-PROTOCOL</b> , <b>ELB-ID</b> , <b>ELB-PORT</b> , <b>ELB-EIP</b> , or <b>ELB-VIP</b> . The value can contain 1 to 128 characters. The value can contain 1 to 128 characters. ASCII codes 32 through 127 printable characters, asterisks (*), and question marks (?) are also supported. The value cannot start or end with a space.

**Table 5-392** RemoveHeadersConfig

Parameter	Type	Description
configs	Array of <a href="#">RemoveHeaderConfig</a> objects	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-393** RemoveHeaderConfig

Parameter	Type	Description
key	String	Specifies the header you want to remove from the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.

**Table 5-394** TrafficLimitConfig

Parameter	Type	Description
qps	Integer	Specifies the maximum number of queries per second (QPS). The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. Minimum: <b>0</b> Maximum: <b>100000</b>
per_source_ip_qps	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. This parameter is not available for QUIC listeners. The value can be <b>0</b> or <b>null</b> . The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. If <b>qps</b> is not set to <b>0</b> , <b>per_source_ip_qps</b> must be specified a smaller value than <b>qps</b> . Minimum: <b>0</b> Maximum: <b>100000</b>
burst	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. The value ranges from <b>0</b> to <b>1,00,000</b> . If the number of requests exceeds the value specified for <b>qps</b> but not reaches the value specified for <b>burst</b> , 503 status code will not be returned. Minimum: <b>0</b> Maximum: <b>100000</b>

## Example Requests

Creating a redirection for a listener.

```
POST https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/l7policies

{
  "l7policy" : {
    "action" : "REDIRECT_TO_LISTENER",
    "listener_id" : "e2220d2a-3faf-44f3-8cd6-0c42952bd0ab",
    "redirect_listener_id" : "48a97732-449e-4aab-b561-828d29e45050"
  }
}
```

## Example Responses

**Status code: 201**

Normal response to POST requests.

```
{
  "request_id" : "b60d1d9a-5263-45b0-b1d6-2810ac7c52a1",
  "l7policy" : {
    "redirect_pool_id" : "768e9e8c-e7cb-4fef-b24b-af9399dbb240",
    "description" : "",
    "admin_state_up" : true,
    "rules" : [ {
      "id" : "c5c2d625-676b-431e-a4c7-c59cc2664881"
    } ],
    "project_id" : "7a9941d34fc1497d8d0797429ecfd354",
    "listener_id" : "cdb03a19-16b7-4e6b-bfec-047aeec74f56",
    "redirect_url" : null,
    "redirect_url_config" : null,
    "redirect_pools_config" : {
      "pool_id" : "722e9e8c-e7cb-4fef-b24b-af9399dbb240",
      "weight" : 12
    },
    "redirect_pools_sticky_session_config" : {
      "timeout" : 23,
      "enable" : false
    },
    "fixed_response_config" : null,
    "redirect_listener_id" : null,
    "action" : "REDIRECT_TO_POOL",
    "position" : 100,
    "priority" : null,
    "provisioning_status" : "ACTIVE",
    "id" : "01832d99-bbd8-4340-9d0c-6ff8f7a37307",
    "name" : "l7policy-67"
  }
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.12.2 Querying Forwarding Policies

### Function

This API is used to query all forwarding policies.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/l7policies

**Table 5-395** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

**Table 5-396** Query Parameters

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>This parameter must be used together with <b>limit</b>.</li><li>If this parameter is not specified, the first page will be queried.</li><li>This parameter cannot be left blank or set to an invalid ID.</li></ul>
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>

Parameter	Mandatory	Type	Description
page_reverse	No	Boolean	<p>Specifies whether to use reverse query. Values:</p> <ul style="list-style-type: none"> <li>• <b>true</b>: Query the previous page.</li> <li>• <b>false</b> (default): Query the next page.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter must be used together with <b>limit</b>.</li> <li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li> </ul>
enterprise_project_id	No	Array	<p>Specifies the enterprise project ID.</p> <ul style="list-style-type: none"> <li>• If this parameter is not passed, resources in the default enterprise project are queried, and authentication is performed based on the default enterprise project.</li> <li>• If this parameter is passed, its value can be the ID of an existing enterprise project (resources in the specific enterprise project are required) or <b>all_granted_eps</b> (resources in all enterprise projects are queried).</li> </ul> <p>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i>.</p>
id	No	Array	<p>Specifies the forwarding policy ID.</p> <p>Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i>.</p>
name	No	Array	<p>Specifies the forwarding policy name.</p> <p>Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i>.</p>



Parameter	Mandatory	Type	Description
description	No	Array	Provides supplementary information about the forwarding policy. Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xx</i> .
admin_state_up	No	Boolean	Specifies the administrative status of the forwarding policy. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.
listener_id	No	Array	Specifies the ID of the listener to which the forwarding policy is added. Multiple IDs can be queried in the format of <i>listener_id=xxx&amp;listener_id=xxx</i> .
position	No	Array	Specifies the forwarding policy priority. Multiple priorities can be queried in the format of <i>position=xxx&amp;position=xxx</i> . This parameter is unsupported. Please do not use it.

Parameter	Mandatory	Type	Description
action	No	Array	<p>Specifies where requests are forwarded. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL:</b> Requests are forwarded to another backend server group.</li> <li>• <b>REDIRECT_TO_LISTENER:</b> Requests are redirected to an HTTPS listener.</li> <li>• <b>REDIRECT_TO_URL:</b> Requests are redirected to another URL.</li> <li>• <b>FIXED_RESPONSE:</b> A fixed response body is returned.</li> </ul> <p>Multiple values can be queried in the format of <i>action=xxx&amp;action=xxx</i>.</p>
redirect_url	No	Array	<p>Specifies the URL to which requests will be forwarded. The URL must be in the format of <i>protocol://host:port/path?query</i>.</p> <p>Multiple URLs can be queried in the format of <i>redirect_url=xxx&amp;redirect_url=xx</i>.</p> <p>This parameter is unsupported. Please do not use it.</p>
redirect_pool_id	No	Array	<p>Specifies the ID of the backend server group to which requests will be forwarded.</p> <p>Multiple IDs can be queried in the format of <i>redirect_pool_id=xxx&amp;redirect_pool_id=xxx</i>.</p>
redirect_listener_id	No	Array	<p>Specifies the ID of the listener to which requests are redirected.</p> <p>Multiple IDs can be queried in the format of <i>redirect_listener_id=xxx&amp;redirect_listener_id=xxx</i>.</p>

Parameter	Mandatory	Type	Description
provisioning_status	No	Array	Specifies the provisioning status of the forwarding policy. <ul style="list-style-type: none"><li>• <b>ACTIVE:</b> The forwarding policy is provisioned successfully.</li><li>• <b>ERROR:</b> The forwarding policy has the same rule as another forwarding policy added to the same listener.</li></ul> Multiple provisioning statuses can be queried in the format of <i>provisioning_status=xxx&amp;provisioning_status=xxx</i> .
display_all_rules	No	Boolean	Specifies whether to display details about the forwarding rule in the forwarding policy. <ul style="list-style-type: none"><li>• <b>true:</b> Details about the forwarding rule are displayed.</li><li>• <b>false:</b> Only the rule ID is displayed.</li></ul>
priority	No	Array	Specifies the forwarding policy priority. A smaller value indicates a higher priority. Multiple priorities can be queried in the format of <i>position=xxx&amp;position=xxx</i> .

## Request Parameters

Table 5-397 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

**Table 5-398** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<a href="#">PageInfo</a> object	Shows pagination information.
l7policies	Array of <a href="#">L7Policy</a> objects	Lists the forwarding policies.

**Table 5-399** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

Table 5-400 L7Policy

Parameter	Type	Description
action	String	<p>Specifies where requests will be forwarded. The value can be one of the following:</p> <ul style="list-style-type: none"><li>● <b>REDIRECT_TO_POOL</b>: Requests will be forwarded to another backend server group.</li><li>● <b>REDIRECT_TO_LISTENER</b>: Requests will be redirected to an HTTPS listener.</li><li>● <b>REDIRECT_TO_URL</b>: Requests will be redirected to another URL.</li><li>● <b>FIXED_RESPONSE</b>: A fixed response body will be returned.</li></ul> <p><b>REDIRECT_TO_LISTENER</b> has the highest priority. If requests are to be redirected to an HTTPS listener, other forwarding policies of the listener will become invalid.</p> <p>Note:</p> <ul style="list-style-type: none"><li>● If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, the listener's protocol must be HTTP, HTTPS, or TERMINATED_HTTPS.</li><li>● If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the listener's protocol must be HTTP.</li></ul>
admin_state_up	Boolean	<p>Specifies the administrative status of the forwarding policy. The default value is <b>true</b>.</p> <p>This parameter is unsupported. Please do not use it.</p>
description	String	<p>Provides supplementary information about the forwarding policy.</p>
id	String	<p>Specifies the forwarding policy ID.</p>
listener_id	String	<p>Specifies the ID of the listener to which the forwarding policy is added.</p>
name	String	<p>Specifies the forwarding policy name.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>255</b></p>
position	Integer	<p>Specifies the forwarding policy priority. This parameter cannot be updated.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>100</b></p>

Parameter	Type	Description
priority	Integer	<p>Specifies the forwarding policy priority. A smaller value indicates a higher priority. The value must be unique for each forwarding policy of the same listener.</p> <p>This parameter is available only for dedicated load balancers and will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the value can only be <b>0</b>, indicating that <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>false</b>, forwarding policies are automatically prioritized based on the original sorting logic. Forwarding policy priorities are independent of each other regardless of domain names. If forwarding policies use the same domain name, their priorities follow the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If prefix match is used for matching, the longer the path, the higher the priority. If a forwarding policy contains only a domain name without a path specified, the path is <b>/</b>, and prefix match is used by default.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>true</b> and this parameter is not passed, the priority will set to a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. There will be two cases:<ol style="list-style-type: none"><li>a) If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to create because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, please specify a value or adjust the priorities of existing forwarding policies.</li><li>b) If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li></ol></li></ul>

Parameter	Type	Description
		For shared load balancers, this parameter is unsupported.
project_id	String	Specifies the project ID of the forwarding policy.
provisioning_status	String	Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> or <b>ERROR</b> . <ul style="list-style-type: none"><li>• <b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li><li>• <b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li></ul>
redirect_pool_id	String	Specifies the ID of the backend server group that requests will be forwarded to. This parameter is valid and mandatory only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
redirect_listener_id	String	Specifies the ID of the listener to which requests are redirected. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> . Note: <ul style="list-style-type: none"><li>• The listener's protocol must be HTTPS or TERMINATED_HTTPS.</li><li>• A listener added to another load balancer is not allowed.</li><li>• This parameter cannot be passed in the API for adding or updating a forwarding policy if <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</li></ul>
redirect_url	String	Specifies the URL to which requests are forwarded. Format: <i>protocol://host:port/path?query</i> This parameter is unsupported. Please do not use it.
rules	Array of <b>RuleRef</b> objects	Lists the forwarding rules in the forwarding policy.

Parameter	Type	Description
redirect_url_config	<a href="#">RedirectUrlConfig</a> object	<p>Specifies the URL to which requests are forwarded.</p> <p>For dedicated load balancers, this parameter will take effect only when advanced forwarding is enabled (<b>enhance_l7policy_enable</b> is set to <b>true</b>). If it is passed when <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_URL</b>. It cannot be specified if the value of <b>action</b> is not <b>REDIRECT_TO_URL</b>.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>At least one of the four parameters (<b>protocol</b>, <b>host</b>, <b>port</b>, and <b>path</b>) must be passed, or their values cannot be set to <b>\${xxx}</b> at the same time. (<b>\${xxx}</b> indicates that the value in the request will be inherited. For example, <b>\${host}</b> indicates the host in the URL to be redirected.) The values of <b>protocol</b> and <b>port</b> cannot be the same as those of the associated listener, and either <b>host</b> or <b>path</b> must be passed or their values cannot be <b>\${xxx}</b> at the same time. For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
redirect_pools_config	Array of <a href="#">RedirectPoolsConfig</a> objects	Specifies the backend server groups that requests are forwarded to. A maximum of 5 backend server groups can be configured for a forwarding policy.
redirect_pools_sticky_session_config	<a href="#">RedirectPoolsStickySessionConfig</a> object	<p>Specifies whether to enable sticky session for backend server groups configured for a forwarding policy. The load balancer generates a cookie after it receives a request from a client. All subsequent requests with the same cookie are routed to the same backend server groups.</p> <p>This parameter is unsupported for shared load balancers. If it is passed, an error will be returned.</p>
redirect_pools_extend_config	<a href="#">RedirectPoolsExtendConfig</a> object	Specifies the backend server group that the requests are forwarded to. This parameter is valid only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .



Parameter	Type	Description
fixed_response_config	<b>FixedResponseConfig</b> object	<p>Specifies the configuration of the page that will be returned. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>FIXED_RESPONSE</b>. It cannot be specified if the value of <b>action</b> is not <b>FIXED_RESPONSE</b>.</p> <p>For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
created_at	String	<p>Specifies the time when the forwarding policy was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the forwarding policy was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-401** RuleRef

Parameter	Type	Description
id	String	Specifies the forwarding rule ID.

**Table 5-402** RedirectUrlConfig

Parameter	Type	Description
protocol	String	Specifies the protocol for redirection. The value can be <b>HTTP</b> , <b>HTTPS</b> , or <b>\${protocol}</b> . The default value is <b>\${protocol}</b> , indicating that the protocol of the request will be used. Minimum: <b>1</b> Maximum: <b>36</b>
host	String	Specifies the host name that requests are redirected to. The value can contain only letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. The default value is <b>\${host}</b> , indicating that the host of the request will be used. Default: <b>\${host}</b> Minimum: <b>1</b> Maximum: <b>128</b>
port	String	Specifies the port that requests are redirected to. The default value is <b>\${port}</b> , indicating that the port of the request will be used. Default: <b>\${port}</b> Minimum: <b>1</b> Maximum: <b>16</b>
path	String	Specifies the path that requests are redirected to. The default value is <b>\${path}</b> , indicating that the path of the request will be used. The value can contain only letters, digits, and special characters <code>_-'@^-%#&amp;\$.*+?,=!: /()[]{} </code> and must start with a slash (/). Default: <b>\${path}</b> Minimum: <b>1</b> Maximum: <b>128</b>

Parameter	Type	Description
query	String	<p>Specifies the query string set in the URL for redirection. The default value is <b>`\${query}</b>, indicating that the query string of the request will be used.</p> <p>For example, in the URL <b>https://www.example.com:8080/elb?type=loadbalancer, `\${query}</b> indicates <b>type=loadbalancer</b>. If this parameter is set to <b>`\${query}&amp;name=my_name</b>, the URL will be redirected to <b>https://www.example.com:8080/elb?type=loadbalancer&amp;name=my_name</b>.</p> <p>The value is case-sensitive and can contain only letters, digits, and special characters ! \$&amp;'()*+,-./:;=?@^_`</p> <p>Default: <b>`\${query}</b></p> <p>Minimum: <b>0</b></p> <p>Maximum: <b>128</b></p>
status_code	String	<p>Specifies the status code returned after the requests are redirected.</p> <p>The value can be <b>301, 302, 303, 307, or 308</b>.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>16</b></p>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-403** RedirectPoolsConfig

Parameter	Type	Description
pool_id	String	Specifies the ID of the backend server group.

Parameter	Type	Description
weight	Integer	Specifies the weight of the backend server group. The value ranges from <b>0</b> to <b>100</b> . Requests are routed to backend server groups based on their weights. Backend server groups with higher weights receive proportionately more requests. No requests will be routed to a backend server group with a weight of 0.  Minimum: <b>0</b> Maximum: <b>100</b>

**Table 5-404** RedirectPoolsStickySessionConfig

Parameter	Type	Description
enable	Boolean	Specifies whether to enable sticky session for backend server groups configured in a forwarding policy. The default value is <b>false</b> , indicating that sticky session is disabled.  Default: <b>false</b>
timeout	Integer	Specifies the duration that a session persists. The value ranges from <b>1</b> to <b>1440</b> (default), in minutes.

**Table 5-405** RedirectPoolsExtendConfig

Parameter	Type	Description
rewrite_url_enable	Boolean	Specifies whether to set <b>rewrite_url_enable</b> to <b>true</b> .
rewrite_url_config	<b>RewriteUrlConfig</b> object	Specifies the URL for the backend server group that requests are forwarded to. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-406** RewriteUrlConfig

Parameter	Type	Description
host	String	<p>Specifies the domain name that requests are redirected to. The domain name can contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</p> <p>The default value is <b>`\${host}</b>, indicating that the host of the request will be used.</p>
path	String	<p>Specifies the path that requests are redirected to.</p> <p>The value can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.+?=: \/()</code> and must start with a slash (/). <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (*) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>#123</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>#</b>.</p> <p>The default value is <b>`\${path}</b>, indicating that the path of the request will be used.</p>
query	String	<p>Specifies the query string set in the URL for redirection. The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'()*+,-./:;=?@^_`</code>. <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (*) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>#123</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>#</b>.</p> <p>The default value is <b>`\${query}</b>, indicating that the query string of the request will be used.</p>

**Table 5-407** FixtedResponseConfig

Parameter	Type	Description
status_code	String	Specifies the HTTP status code configured in the forwarding policy. The value can be any integer in the range of 200–299, 400–499, or 500–599. Minimum: <b>1</b> Maximum: <b>16</b>
content_type	String	Specifies the format of the response body. The value can be <b>text/plain</b> , <b>text/css</b> , <b>text/html</b> , <b>application/javascript</b> , or <b>application/json</b> . Minimum: <b>0</b> Maximum: <b>32</b>
message_body	String	Specifies the content of the response message body. Minimum: <b>0</b> Maximum: <b>1024</b>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-408** InsertHeadersConfig

Parameter	Type	Description
configs	Array of <b>InsertHeaderConfig</b> objects	Specifies the headers you want to write into the request that matches the condition.

**Table 5-409** InsertHeaderConfig

Parameter	Type	Description
key	String	Specifies the key of the header you want to write into the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.
value_type	String	Specifies the value type. The value can be <b>USER_DEFINED</b> , <b>REFERENCE_HEADER</b> , or <b>SYSTEM_DEFINED</b> .
value	String	Specifies the value of the header. If <b>value_type</b> is set to <b>SYSTEM_DEFINED</b> , the value can be <b>CLIENT-PORT</b> , <b>CLIENT-IP</b> , <b>ELB-PROTOCOL</b> , <b>ELB-ID</b> , <b>ELB-PORT</b> , <b>ELB-EIP</b> , or <b>ELB-VIP</b> . The value can contain 1 to 128 characters. The value can contain 1 to 128 characters. ASCII codes 32 through 127 printable characters, asterisks (*), and question marks (?) are also supported. The value cannot start or end with a space.

**Table 5-410** RemoveHeadersConfig

Parameter	Type	Description
configs	Array of <a href="#">RemoveHeaderConfig</a> objects	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-411** RemoveHeaderConfig

Parameter	Type	Description
key	String	Specifies the header you want to remove from the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.

**Table 5-412** TrafficLimitConfig

Parameter	Type	Description
qps	Integer	Specifies the maximum number of queries per second (QPS). The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. Minimum: <b>0</b> Maximum: <b>100000</b>
per_source_ip_qps	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. This parameter is not available for QUIC listeners. The value can be <b>0</b> or <b>null</b> . The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. If <b>qps</b> is not set to <b>0</b> , <b>per_source_ip_qps</b> must be specified a smaller value than <b>qps</b> . Minimum: <b>0</b> Maximum: <b>100000</b>
burst	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. The value ranges from <b>0</b> to <b>1,00,000</b> . If the number of requests exceeds the value specified for <b>qps</b> but not reaches the value specified for <b>burst</b> , 503 status code will not be returned. Minimum: <b>0</b> Maximum: <b>100000</b>



## Example Requests

Querying forwarding policies

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/l7policies?display_all_rules=true
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "request_id": "d3c67339-be91-4813-bb24-85728a5d326a",
  "l7policies": [ {
    "redirect_pool_id": "768e9e8c-e7cb-4fef-b24b-af9399dbb240",
    "description": "",
    "admin_state_up": true,
    "rules": [ {
      "id": "c5c2d625-676b-431e-a4c7-c59cc2664881"
    } ],
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "listener_id": "cdb03a19-16b7-4e6b-bfec-047aeec74f56",
    "redirect_url": null,
    "redirect_url_config": null,
    "redirect_pools_config": {
      "pool_id": "722e9e8c-e7cb-4fef-b24b-af9399dbb240",
      "weight": 12
    },
    "redirect_pools_sticky_session_config": {
      "timeout": 23,
      "enable": false
    },
    "fixed_response_config": null,
    "redirect_listener_id": null,
    "action": "REDIRECT_TO_POOL",
    "position": 100,
    "priority": null,
    "provisioning_status": "ACTIVE",
    "id": "01832d99-bbd8-4340-9d0c-6ff8f7a37307",
    "name": "l7policy-67"
  }, {
    "redirect_pool_id": null,
    "description": "",
    "admin_state_up": true,
    "rules": [ {
      "id": "390f3a9f-670d-4ca6-b72c-6be8a48a8a00"
    } ],
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "listener_id": "bd782cbf-fb5e-411a-9295-530bdec05058",
    "redirect_url": null,
    "redirect_url_config": null,
    "redirect_pools_config": {
      "pool_id": "722e9e8c-e7cb-4fef-b24b-af9399dbb240",
      "weight": 12
    },
    "redirect_pools_sticky_session_config": {
      "timeout": 23,
      "enable": false
    },
    "fixed_response_config": {
      "content_type": "text/plain",
      "message_body": "",
      "status_code": "207"
    },
    "redirect_listener_id": null,
    "action": "FIXED_RESPONSE",
    "position": 6,
  }
]
```

```
"priority" : 2,
"provisioning_status" : "ACTIVE",
"id" : "049a8635-9754-444e-94aa-678993b39cd6",
"name" : "l7policy-67"
}],
"page_info" : {
"next_marker" : "2587d8b1-9e8d-459c-9081-7bccaa075d2b",
"previous_marker" : "01832d99-bbd8-4340-9d0c-6ff8f7a37307",
"current_count" : 2
}
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.12.3 Viewing Details of a Forwarding Policy

### Function

This API is used to view details of a forwarding policy.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/l7policies/{l7policy\_id}

**Table 5-413** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
l7policy_id	Yes	String	Specifies the forwarding policy ID.

## Request Parameters

**Table 5-414** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

**Status code: 200****Table 5-415** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
l7policy	<b>L7Policy</b> object	Specifies the forwarding policy.

**Table 5-416** L7Policy

Parameter	Type	Description
action	String	<p>Specifies where requests will be forwarded. The value can be one of the following:</p> <ul style="list-style-type: none"><li>● <b>REDIRECT_TO_POOL</b>: Requests will be forwarded to another backend server group.</li><li>● <b>REDIRECT_TO_LISTENER</b>: Requests will be redirected to an HTTPS listener.</li><li>● <b>REDIRECT_TO_URL</b>: Requests will be redirected to another URL.</li><li>● <b>FIXED_RESPONSE</b>: A fixed response body will be returned.</li></ul> <p><b>REDIRECT_TO_LISTENER</b> has the highest priority. If requests are to be redirected to an HTTPS listener, other forwarding policies of the listener will become invalid.</p> <p>Note:</p> <ul style="list-style-type: none"><li>● If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, the listener's protocol must be HTTP, HTTPS, or TERMINATED_HTTPS.</li><li>● If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the listener's protocol must be HTTP.</li></ul>

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the forwarding policy. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.
description	String	Provides supplementary information about the forwarding policy.
id	String	Specifies the forwarding policy ID.
listener_id	String	Specifies the ID of the listener to which the forwarding policy is added.
name	String	Specifies the forwarding policy name. Minimum: <b>1</b> Maximum: <b>255</b>
position	Integer	Specifies the forwarding policy priority. This parameter cannot be updated. This parameter is unsupported. Please do not use it. Minimum: <b>1</b> Maximum: <b>100</b>

Parameter	Type	Description
priority	Integer	<p>Specifies the forwarding policy priority. A smaller value indicates a higher priority. The value must be unique for each forwarding policy of the same listener.</p> <p>This parameter is available only for dedicated load balancers and will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the value can only be <b>0</b>, indicating that <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>false</b>, forwarding policies are automatically prioritized based on the original sorting logic. Forwarding policy priorities are independent of each other regardless of domain names. If forwarding policies use the same domain name, their priorities follow the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If prefix match is used for matching, the longer the path, the higher the priority. If a forwarding policy contains only a domain name without a path specified, the path is <b>/</b>, and prefix match is used by default.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>true</b> and this parameter is not passed, the priority will set to a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. There will be two cases:<ol style="list-style-type: none"><li>a) If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to create because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, please specify a value or adjust the priorities of existing forwarding policies.</li><li>b) If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li></ol></li></ul>

Parameter	Type	Description
		For shared load balancers, this parameter is unsupported.
project_id	String	Specifies the project ID of the forwarding policy.
provisioning_status	String	Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> or <b>ERROR</b> . <ul style="list-style-type: none"><li>• <b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li><li>• <b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li></ul>
redirect_pool_id	String	Specifies the ID of the backend server group that requests will be forwarded to. This parameter is valid and mandatory only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
redirect_listener_id	String	Specifies the ID of the listener to which requests are redirected. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> . Note: <ul style="list-style-type: none"><li>• The listener's protocol must be HTTPS or TERMINATED_HTTPS.</li><li>• A listener added to another load balancer is not allowed.</li><li>• This parameter cannot be passed in the API for adding or updating a forwarding policy if <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</li></ul>
redirect_url	String	Specifies the URL to which requests are forwarded. Format: <i>protocol://host:port/path?query</i> This parameter is unsupported. Please do not use it.
rules	Array of <b>RuleRef</b> objects	Lists the forwarding rules in the forwarding policy.

Parameter	Type	Description
redirect_url_config	<a href="#">RedirectUrlConfig</a> object	<p>Specifies the URL to which requests are forwarded.</p> <p>For dedicated load balancers, this parameter will take effect only when advanced forwarding is enabled (<b>enhance_l7policy_enable</b> is set to <b>true</b>). If it is passed when <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_URL</b>. It cannot be specified if the value of <b>action</b> is not <b>REDIRECT_TO_URL</b>.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>At least one of the four parameters (<b>protocol</b>, <b>host</b>, <b>port</b>, and <b>path</b>) must be passed, or their values cannot be set to <b>\${xxx}</b> at the same time. (<b>\${xxx}</b> indicates that the value in the request will be inherited. For example, <b>\${host}</b> indicates the host in the URL to be redirected.) The values of <b>protocol</b> and <b>port</b> cannot be the same as those of the associated listener, and either <b>host</b> or <b>path</b> must be passed or their values cannot be <b>\${xxx}</b> at the same time. For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
redirect_pools_config	Array of <a href="#">RedirectPoolsConfig</a> objects	Specifies the backend server groups that requests are forwarded to. A maximum of 5 backend server groups can be configured for a forwarding policy.
redirect_pools_sticky_session_config	<a href="#">RedirectPoolsStickySessionConfig</a> object	<p>Specifies whether to enable sticky session for backend server groups configured for a forwarding policy. The load balancer generates a cookie after it receives a request from a client. All subsequent requests with the same cookie are routed to the same backend server groups.</p> <p>This parameter is unsupported for shared load balancers. If it is passed, an error will be returned.</p>
redirect_pools_extend_config	<a href="#">RedirectPoolsExtendConfig</a> object	Specifies the backend server group that the requests are forwarded to. This parameter is valid only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .

Parameter	Type	Description
fixed_response_config	<b>FixedResponseConfig</b> object	<p>Specifies the configuration of the page that will be returned. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>FIXED_RESPONSE</b>. It cannot be specified if the value of <b>action</b> is not <b>FIXED_RESPONSE</b>.</p> <p>For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
created_at	String	<p>Specifies the time when the forwarding policy was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the forwarding policy was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-417** RuleRef

Parameter	Type	Description
id	String	Specifies the forwarding rule ID.



**Table 5-418** RedirectUrlConfig

Parameter	Type	Description
protocol	String	Specifies the protocol for redirection. The value can be <b>HTTP</b> , <b>HTTPS</b> , or <b>\${protocol}</b> . The default value is <b>\${protocol}</b> , indicating that the protocol of the request will be used. Minimum: <b>1</b> Maximum: <b>36</b>
host	String	Specifies the host name that requests are redirected to. The value can contain only letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. The default value is <b>\${host}</b> , indicating that the host of the request will be used. Default: <b>\${host}</b> Minimum: <b>1</b> Maximum: <b>128</b>
port	String	Specifies the port that requests are redirected to. The default value is <b>\${port}</b> , indicating that the port of the request will be used. Default: <b>\${port}</b> Minimum: <b>1</b> Maximum: <b>16</b>
path	String	Specifies the path that requests are redirected to. The default value is <b>\${path}</b> , indicating that the path of the request will be used. The value can contain only letters, digits, and special characters <code>_-'@^-%#&amp;\$.*+?,=!: /()[]{} </code> and must start with a slash (/). Default: <b>\${path}</b> Minimum: <b>1</b> Maximum: <b>128</b>

Parameter	Type	Description
query	String	<p>Specifies the query string set in the URL for redirection. The default value is <b>#{query}</b>, indicating that the query string of the request will be used.</p> <p>For example, in the URL <b>https://www.example.com:8080/elb?type=loadbalancer, #{query}</b> indicates <b>type=loadbalancer</b>. If this parameter is set to <b>#{query}&amp;name=my_name</b>, the URL will be redirected to <b>https://www.example.com:8080/elb?type=loadbalancer&amp;name=my_name</b>.</p> <p>The value is case-sensitive and can contain only letters, digits, and special characters ! \$&amp;'()*+,-./:;=?@^_`</p> <p>Default: <b>#{query}</b></p> <p>Minimum: <b>0</b></p> <p>Maximum: <b>128</b></p>
status_code	String	<p>Specifies the status code returned after the requests are redirected.</p> <p>The value can be <b>301, 302, 303, 307, or 308</b>.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>16</b></p>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-419** RedirectPoolsConfig

Parameter	Type	Description
pool_id	String	Specifies the ID of the backend server group.

Parameter	Type	Description
weight	Integer	Specifies the weight of the backend server group. The value ranges from <b>0</b> to <b>100</b> . Requests are routed to backend server groups based on their weights. Backend server groups with higher weights receive proportionately more requests. No requests will be routed to a backend server group with a weight of 0.  Minimum: <b>0</b> Maximum: <b>100</b>

**Table 5-420** RedirectPoolsStickySessionConfig

Parameter	Type	Description
enable	Boolean	Specifies whether to enable sticky session for backend server groups configured in a forwarding policy. The default value is <b>false</b> , indicating that sticky session is disabled.  Default: <b>false</b>
timeout	Integer	Specifies the duration that a session persists. The value ranges from <b>1</b> to <b>1440</b> (default), in minutes.

**Table 5-421** RedirectPoolsExtendConfig

Parameter	Type	Description
rewrite_url_enable	Boolean	Specifies whether to set <b>rewrite_url_enable</b> to <b>true</b> .
rewrite_url_config	<b>RewriteUrlConfig</b> object	Specifies the URL for the backend server group that requests are forwarded to. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-422** RewriteUrlConfig

Parameter	Type	Description
host	String	<p>Specifies the domain name that requests are redirected to. The domain name can contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</p> <p>The default value is <b>`\${host}</b>, indicating that the host of the request will be used.</p>
path	String	<p>Specifies the path that requests are redirected to.</p> <p>The value can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.+?;=:/\ ()</code> and must start with a slash (/). <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (*) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>`\${123}</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>`\${#}</b>.</p> <p>The default value is <b>`\${path}</b>, indicating that the path of the request will be used.</p>
query	String	<p>Specifies the query string set in the URL for redirection. The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'()*+,-./:;=?@^_`</code>. <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (*) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>`\${123}</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>`\${#}</b>.</p> <p>The default value is <b>`\${query}</b>, indicating that the query string of the request will be used.</p>

**Table 5-423** FixtedResponseConfig

Parameter	Type	Description
status_code	String	Specifies the HTTP status code configured in the forwarding policy. The value can be any integer in the range of 200–299, 400–499, or 500–599. Minimum: <b>1</b> Maximum: <b>16</b>
content_type	String	Specifies the format of the response body. The value can be <b>text/plain</b> , <b>text/css</b> , <b>text/html</b> , <b>application/javascript</b> , or <b>application/json</b> . Minimum: <b>0</b> Maximum: <b>32</b>
message_body	String	Specifies the content of the response message body. Minimum: <b>0</b> Maximum: <b>1024</b>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-424** InsertHeadersConfig

Parameter	Type	Description
configs	Array of <b>InsertHeaderConfig</b> objects	Specifies the headers you want to write into the request that matches the condition.

**Table 5-425** InsertHeaderConfig

Parameter	Type	Description
key	String	Specifies the key of the header you want to write into the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.
value_type	String	Specifies the value type. The value can be <b>USER_DEFINED</b> , <b>REFERENCE_HEADER</b> , or <b>SYSTEM_DEFINED</b> .
value	String	Specifies the value of the header. If <b>value_type</b> is set to <b>SYSTEM_DEFINED</b> , the value can be <b>CLIENT-PORT</b> , <b>CLIENT-IP</b> , <b>ELB-PROTOCOL</b> , <b>ELB-ID</b> , <b>ELB-PORT</b> , <b>ELB-EIP</b> , or <b>ELB-VIP</b> . The value can contain 1 to 128 characters. The value can contain 1 to 128 characters. ASCII codes 32 through 127 printable characters, asterisks (*), and question marks (?) are also supported. The value cannot start or end with a space.

**Table 5-426** RemoveHeadersConfig

Parameter	Type	Description
configs	Array of <a href="#">RemoveHeaderConfig</a> objects	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-427** RemoveHeaderConfig

Parameter	Type	Description
key	String	Specifies the header you want to remove from the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.

**Table 5-428** TrafficLimitConfig

Parameter	Type	Description
qps	Integer	Specifies the maximum number of queries per second (QPS). The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. Minimum: <b>0</b> Maximum: <b>100000</b>
per_source_ip_qps	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. This parameter is not available for QUIC listeners. The value can be <b>0</b> or <b>null</b> . The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. If <b>qps</b> is not set to <b>0</b> , <b>per_source_ip_qps</b> must be specified a smaller value than <b>qps</b> . Minimum: <b>0</b> Maximum: <b>100000</b>
burst	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. The value ranges from <b>0</b> to <b>1,00,000</b> . If the number of requests exceeds the value specified for <b>qps</b> but not reaches the value specified for <b>burst</b> , 503 status code will not be returned. Minimum: <b>0</b> Maximum: <b>100000</b>

## Example Requests

Querying details of a forwarding policy

```
GET https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "l7policy" : {
    "redirect_pool_id" : "768e9e8c-e7cb-4fef-b24b-af9399dbb240",
    "description" : "",
    "admin_state_up" : true,
    "rules" : [ {
      "id" : "c5c2d625-676b-431e-a4c7-c59cc2664881"
    } ],
    "project_id" : "7a9941d34fc1497d8d0797429ecfd354",
    "listener_id" : "cdb03a19-16b7-4e6b-bfec-047aeec74f56",
    "redirect_url" : null,
    "redirect_url_config" : null,
    "redirect_pools_config" : {
      "pool_id" : "722e9e8c-e7cb-4fef-b24b-af9399dbb240",
      "weight" : 12
    },
    "redirect_pools_sticky_session_config" : {
      "timeout" : 23,
      "enable" : false
    },
    "fixed_response_config" : {
      "content_type" : "text/plain",
      "message_body" : "",
      "status_code" : "207"
    },
    "redirect_listener_id" : null,
    "action" : "REDIRECT_TO_POOL",
    "position" : 100,
    "priority" : 1,
    "provisioning_status" : "ACTIVE",
    "id" : "01832d99-bbd8-4340-9d0c-6ff8f7a37307",
    "name" : "l7policy-67"
  },
  "request_id" : "6be83ec4-623e-4840-a417-2fcdf8ad5dfa"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).



## 5.12.4 Updating a Forwarding Policy

### Function

This API is used to update a forwarding policy.

### Calling Method

For details, see [Calling APIs](#).

### URI

PUT /v3/{project\_id}/elb/l7policies/{l7policy\_id}

**Table 5-429** Path Parameters

Parameter	Mandatory	Type	Description
l7policy_id	Yes	String	Specifies the forwarding policy ID.
project_id	Yes	String	Specifies the project ID.

### Request Parameters

**Table 5-430** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-431** Request body parameters

Parameter	Mandatory	Type	Description
l7policy	Yes	<a href="#">UpdateL7PolicyOption</a> object	Specifies the forwarding policy.

**Table 5-432** UpdateL7PolicyOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the forwarding policy. The default value is <b>true</b> .  This parameter is unsupported. Please do not use it.
description	No	String	Provides supplementary information about the forwarding policy.  Minimum: <b>0</b> Maximum: <b>255</b>
name	No	String	Specifies the forwarding policy name.  Minimum: <b>0</b> Maximum: <b>255</b>
redirect_listener_id	No	String	Specifies the ID of the listener to which requests are redirected.  Note: <ul style="list-style-type: none"><li>• This parameter cannot be left blank or set to null when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</li><li>• The listener's protocol must be HTTPS.</li><li>• A listener added to another load balancer is not allowed.</li><li>• This parameter cannot be passed in the API for adding or updating a forwarding policy if <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</li></ul>

Parameter	Mandatory	Type	Description
redirect_pool_id	No	String	<p>Specifies the ID of the backend server group that requests will be forwarded to.</p> <ul style="list-style-type: none"><li>• This parameter is valid and mandatory only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>. The specified backend server group cannot be the default backend server group associated with the listener, or any backend server group associated with the forwarding policies of other listeners.</li><li>• This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</li></ul>
redirect_pools_config	No	Array of <a href="#">UpdateRedirectPoolsConfig</a> objects	<p>Specifies the backend server groups that requests are forwarded to. A maximum of 5 backend server groups can be configured for a forwarding policy.</p>
redirect_pools_sticky_session_config	No	<a href="#">UpdateRedirectPoolsStickySessionConfig</a> object	<p>Specifies whether to enable sticky session for backend server groups configured for a forwarding policy. The load balancer generates a cookie after it receives a request from a client. All subsequent requests with the same cookie are routed to the same backend server groups.</p> <p>This parameter is unsupported for shared load balancers. If it is passed, an error will be returned.</p>

Parameter	Mandatory	Type	Description
redirect_url_config	No	<a href="#">UpdateRedirectUrlConfig</a> object	<p>Specifies the URL to which requests are forwarded.</p> <p>For dedicated load balancers, this parameter will take effect only when advanced forwarding is enabled (<b>enhance_l7policy_enable</b> is set to <b>true</b>). If it is passed when <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_URL</b>. It cannot be specified if the value of <b>action</b> is not <b>REDIRECT_TO_URL</b>.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>At least one of the four parameters (<b>protocol</b>, <b>host</b>, <b>port</b>, and <b>path</b>) must be passed, or their values cannot be set to <b>\${xxx}</b> at the same time. (<b>\${xxx}</b> indicates that the value in the request will be inherited. For example, <b>\${host}</b> indicates the host in the URL to be redirected.) The values of <b>protocol</b> and <b>port</b> cannot be the same as those of the associated listener, and either <b>host</b> or <b>path</b> must be passed or their values cannot be <b>\${xxx}</b> at the same time. For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>

Parameter	Mandatory	Type	Description
fixed_response_config	No	<a href="#">UpdateFixedResponseConfig</a> object	<p>Specifies the configuration of the page that will be returned. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>FIXED_RESPONSE</b>. It cannot be specified if the value of <b>action</b> is not <b>FIXED_RESPONSE</b>.</p> <p>For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
redirect_pools_extend_config	No	<a href="#">UpdateRedirectPoolsExtendConfig</a> object	<p>Specifies the backend server group that the requests are forwarded to.</p>
rules	No	Array of <a href="#">CreateRuleOption</a> objects	<p>Lists the forwarding rules in the forwarding policy.</p> <p>The list can contain a maximum of 10 forwarding rules (if <b>conditions</b> is specified, a condition is considered as a rule).</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type.</p> <p>For details, see the description of <b>l7rule</b>.</p>

Parameter	Mandatory	Type	Description
priority	No	Integer	<p>Specifies the forwarding policy priority. A smaller value indicates a higher priority. The value must be unique for each forwarding policy of the same listener.</p> <p>This parameter is available only for dedicated load balancers and will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the value can only be <b>0</b>, indicating that <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>false</b>, forwarding policies are automatically prioritized based on the original sorting logic. Forwarding policy priorities are independent of each other regardless of domain names. If forwarding policies use the same domain name, their priorities follow the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If prefix match is used for matching, the longer the path, the higher the priority. If a forwarding policy contains only a domain name without a path specified, the path is <b>/</b>, and prefix match is used by default.</li></ul>

Parameter	Mandatory	Type	Description
			<ul style="list-style-type: none"> <li>If <b>enhance_l7policy_enable</b> is set to <b>true</b> and this parameter is not passed, the priority will set to a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. There will be two cases:                             <ol style="list-style-type: none"> <li>If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to create because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, please specify a value or adjust the priorities of existing forwarding policies.</li> <li>If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li> </ol>                             For shared load balancers, this parameter is unsupported.                              Minimum: <b>0</b>                              Maximum: <b>10000</b> </li> </ul>

**Table 5-433** UpdateRedirectPoolsConfig

Parameter	Mandatory	Type	Description
pool_id	Yes	String	Specifies the ID of the backend server group.

Parameter	Mandatory	Type	Description
weight	No	String	Specifies the weight of the backend server group. The value ranges from <b>1</b> (default) to <b>100</b> . Requests are routed to backend server groups based on their weights. Backend server groups with higher weights receive proportionately more requests. No requests will be routed to a backend server group with a weight of 0. Default: <b>1</b>

**Table 5-434** UpdateRedirectPoolsStickySessionConfig

Parameter	Mandatory	Type	Description
enable	No	Boolean	Specifies whether to enable sticky session for backend server groups configured in a forwarding policy. The default value is <b>false</b> , indicating that sticky session is disabled.
timeout	No	Integer	Specifies the duration that a session persists. The value ranges from <b>1</b> to <b>1440</b> (default), in minutes.

**Table 5-435** UpdateRedirectUrlConfig

Parameter	Mandatory	Type	Description
protocol	No	String	Specifies the protocol for redirection. The value can be <b>HTTP</b> , <b>HTTPS</b> , or <b>`\${protocol}`</b> . The default value is <b>`\${protocol}`</b> , indicating that the protocol of the request will be used. Minimum: <b>1</b> Maximum: <b>36</b>



Parameter	Mandatory	Type	Description
host	No	String	<p>Specifies the host name that requests are redirected to. The value can contain only letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. The default value is <b>`\${host}`</b>, indicating that the host of the request will be used.</p> <p>Default: <b>`\${host}`</b> Minimum: <b>1</b> Maximum: <b>128</b></p>
port	No	String	<p>Specifies the port that requests are redirected to. The default value is <b>`\${port}`</b>, indicating that the port of the request will be used.</p> <p>Default: <b>`\${port}`</b> Minimum: <b>1</b> Maximum: <b>16</b></p>
path	No	String	<p>Specifies the path that requests are redirected to. The default value is <b>`\${path}`</b>, indicating that the path of the request will be used.</p> <p>The value can contain only letters, digits, and special characters <code>_-'@^-%#&amp;\$.*+?=: /()[]{}</code> and must start with a slash (/).</p> <p>Default: <b>`\${path}`</b> Minimum: <b>1</b> Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
query	No	String	<p>Specifies the query string set in the URL for redirection. The default value is <b><code>\${query}</code></b>, indicating that the query string of the request will be used.</p> <p>For example, in the URL <b><code>https://www.example.com:8080/elb?type=loadbalancer, \${query}</code></b> indicates <b><code>type=loadbalancer</code></b>. If this parameter is set to <b><code>\${query}&amp;name=my_name</code></b>, the URL will be redirected to <b><code>https://www.example.com:8080/elb?type=loadbalancer&amp;name=my_name</code></b>.</p> <p>The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'()*+,-./:;=?@^_`</code>.</p> <p>Default: <b><code>\${query}</code></b> Minimum: <b>0</b> Maximum: <b>128</b></p>
status_code	No	String	<p>Specifies the status code returned after the requests are redirected.</p> <p>The value can be <b>301, 302, 303, 307, or 308</b>.</p> <p>Minimum: <b>1</b> Maximum: <b>16</b></p>
insert_headers_config	No	<b>UpdateInsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	No	<b>UpdateRemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-436** UpdateFixedResponseConfig

Parameter	Mandatory	Type	Description
status_code	No	String	Specifies the HTTP status code configured in the forwarding rule. The value can be any integer in the range of 200–299, 400–499, or 500–599. Minimum: <b>1</b> Maximum: <b>16</b>
content_type	No	String	Specifies the format of the response body. The value can be <b>text/plain</b> , <b>text/css</b> , <b>text/html</b> , <b>application/javascript</b> , or <b>application/json</b> . Minimum: <b>1</b> Maximum: <b>64</b>
message_body	No	String	Specifies the content of the response message body. Minimum: <b>0</b> Maximum: <b>1024</b>
insert_headers_config	No	<a href="#">UpdateInsertHeadersConfig</a> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	No	<a href="#">UpdateRemoveHeadersConfig</a> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	No	<a href="#">UpdateTrafficLimitConfig</a> object	Specifies how requests are limited.

**Table 5-437** UpdateRedirectPoolsExtendConfig

Parameter	Mandatory	Type	Description
rewrite_url_enable	No	Boolean	Specifies whether to enable URL redirection.
rewrite_url_config	No	<a href="#">UpdateRewriteUrlConfig</a> object	Specifies the URL that requests are directed to. This parameter takes effect only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .

Parameter	Mandatory	Type	Description
insert_headers_config	No	<a href="#">UpdateInsertHeadersConfig</a> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	No	<a href="#">UpdateRemoveHeadersConfig</a> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	No	<a href="#">UpdateTrafficLimitConfig</a> object	Specifies how requests are limited.

**Table 5-438** UpdateRewriteUrlConfig

Parameter	Mandatory	Type	Description
host	No	String	Specifies the domain name that requests are redirected to. The domain name can contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit. The default value is <b><code>\${host}</code></b> , indicating that the host of the request will be used.

Parameter	Mandatory	Type	Description
path	No	String	<p>Specifies the path that requests are redirected to. The value must start with a slash (/) and can contain only letters, digits, and special characters: <code>_~';@^-%#&amp;\$.+?,=!: /()</code> \$1, \$2, \$3, and all the way to \$9 match the wildcard asterisk (*) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>#123</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>#</b>.</p> <p>The default value is <b>`\${path}</b>, indicating that the path of the request will be used.</p>

Parameter	Mandatory	Type	Description
query	No	String	Specifies the query string set in the URL for redirection. The value can contain only letters, digits, and special characters: ! \$&'()+,.-/;:=?@^_` The letters in the name are case-sensitive. \$1, \$2, \$3, and all the way to \$9 match the wildcard asterisk (*) in the request URL. If the number of regular expression match groups is less than the specified number, <b>\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>\$abc#123</b> , and the matching result is <b>#123</b> . If the dollar sign (\$) is followed by a special character, for example, <b>\$#</b> , the matching result is <b>#</b> . The default value is <b>\${query}</b> , indicating that the query string of the request will be used.

**Table 5-439** UpdateInsertHeadersConfig

Parameter	Mandatory	Type	Description
configs	Yes	Array of <b>UpdateInsertHeaderConfig</b> objects	Specifies the headers you want to write into the request that matches the condition.

**Table 5-440** UpdateInsertHeaderConfig

Parameter	Mandatory	Type	Description
key	Yes	String	Specifies the key of the header you want to write into the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.
value_type	Yes	String	Specifies the value type. The value can be <b>USER_DEFINED</b> , <b>REFERENCE_HEADER</b> , or <b>SYSTEM_DEFINED</b> .
value	Yes	String	Specifies the value of the header. If <b>value_type</b> is set to <b>SYSTEM_DEFINED</b> , the value can be <b>CLIENT-PORT</b> , <b>CLIENT-IP</b> , <b>ELB-PROTOCOL</b> , <b>ELB-ID</b> , <b>ELB-PORT</b> , <b>ELB-EIP</b> , or <b>ELB-VIP</b> .  The value can contain 1 to 128 characters. ASCII codes 32 through 127 printable characters, asterisks (*), and question marks (?) are also supported. The value cannot start or end with a space.

**Table 5-441** UpdateRemoveHeadersConfig

Parameter	Mandatory	Type	Description
configs	Yes	Array of <a href="#">UpdateRemoveHeaderConfig</a> objects	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-442** UpdateRemoveHeaderConfig

Parameter	Mandatory	Type	Description
key	Yes	String	Specifies the header you want to remove from the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.

**Table 5-443** UpdateTrafficLimitConfig

Parameter	Mandatory	Type	Description
qps	No	Integer	Specifies the maximum number of queries per second (QPS). The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. Minimum: <b>0</b> Maximum: <b>100000</b>



Parameter	Mandatory	Type	Description
per_source_ip_qps	No	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. This parameter is not available for QUIC listeners. The value can be <b>0</b> or <b>null</b> . The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. If <b>qps</b> is not set to <b>0</b> , <b>per_source_ip_qps</b> must be specified a smaller value than <b>qps</b> . Minimum: <b>0</b> Maximum: <b>100000</b>
burst	No	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. The value ranges from <b>0</b> to <b>1,00,000</b> . If the number of requests exceeds the value specified for <b>qps</b> but not reaches the value specified for <b>burst</b> , 503 status code will not be returned. Minimum: <b>0</b> Maximum: <b>100000</b>

**Table 5-444** CreateRuleOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.

Parameter	Mandatory	Type	Description
compare_type	Yes	String	<p>Specifies how requests are matched with the forwarding rule. Values:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: exact match.</li> <li>• <b>REGEX</b>: regular expression match</li> <li>• <b>STARTS_WITH</b>: prefix match</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can only be <b>EQUAL_TO</b>, and asterisks (*) can be used as wildcard characters.</li> <li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li> <li>• If <b>type</b> is set to <b>METHOD</b> or <b>SOURCE_IP</b>, the value can only be <b>EQUAL_TO</b>.</li> <li>• If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, the value can only be <b>EQUAL_TO</b>, asterisks (*) and question marks (?) can be used as wildcard characters.</li> </ul>
key	No	String	<p>Specifies the key of match content. For example, if the request header is used for forwarding, <b>key</b> is the request header.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>0</b> Maximum: <b>255</b></p>

Parameter	Mandatory	Type	Description
value	Yes	String	<p>Specifies the value of the match content. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter is valid only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"> <li>If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), periods (.), and asterisks (*) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!: /() [] {}</code></li> <li>If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>
project_id	No	String	<p>Specifies the project ID.</p> <p>Minimum: <b>32</b> Maximum: <b>32</b></p>

Parameter	Mandatory	Type	Description
type	Yes	String	<p>Specifies the type of the forwarding rule. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>HOST_NAME</b>: A domain name will be used for matching.</li><li>• <b>PATH</b>: A URL will be used for matching.</li><li>• <b>METHOD</b>: An HTTP request method will be used for matching.</li><li>• <b>HEADER</b>: The request header will be used for matching.</li><li>• <b>QUERY_STRING</b>: A query string will be used for matching.</li><li>• <b>SOURCE_IP</b>: The source IP address will be used for matching.</li><li>• <b>COOKIE</b>: A cookie will be used for matching.</li></ul> <p>Note:</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, multiple forwarding rules can be created for each type.</p>
invert	No	Boolean	<p>Specifies whether reverse matching is supported. The value can be <b>true</b> or <b>false</b> (default).</p> <p>This parameter is unsupported. Please do not use it.</p>

Parameter	Mandatory	Type	Description
conditions	No	Array of <a href="#">CreateRuleCondition</a> objects	<p>Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b>.</p> <p>If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.</p>

**Table 5-445** CreateRuleCondition

Parameter	Mandatory	Type	Description
key	No	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"> <li>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li> <li>If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li> <li>If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({ }), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li> </ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
value	Yes	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"> <li>If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (*), and <i>must start with a letter, digit, or asterisk (^)</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+? ,=!: /() [] {}</code></li> <li>If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the</li> </ul>

Parameter	Mandatory	Type	Description
			<p>query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET</b>, <b>PUT</b>, <b>POST</b>, <b>DELETE</b>, <b>PATCH</b>, <b>HEAD</b>, or <b>OPTIONS</b>.</li> <li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4 or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.]</li> </ul> <p>All values of the condition list in a forwarding rule must be unique.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

## Response Parameters

Status code: 200



**Table 5-446** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
l7policy	<b>L7Policy</b> object	Specifies the forwarding policy.

**Table 5-447** L7Policy

Parameter	Type	Description
action	String	<p>Specifies where requests will be forwarded. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>REDIRECT_TO_POOL</b>: Requests will be forwarded to another backend server group.</li><li>• <b>REDIRECT_TO_LISTENER</b>: Requests will be redirected to an HTTPS listener.</li><li>• <b>REDIRECT_TO_URL</b>: Requests will be redirected to another URL.</li><li>• <b>FIXED_RESPONSE</b>: A fixed response body will be returned.</li></ul> <p><b>REDIRECT_TO_LISTENER</b> has the highest priority. If requests are to be redirected to an HTTPS listener, other forwarding policies of the listener will become invalid.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, the listener's protocol must be HTTP, HTTPS, or TERMINATED_HTTPS.</li><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the listener's protocol must be HTTP.</li></ul>
admin_state_up	Boolean	<p>Specifies the administrative status of the forwarding policy. The default value is <b>true</b>.</p> <p>This parameter is unsupported. Please do not use it.</p>
description	String	Provides supplementary information about the forwarding policy.
id	String	Specifies the forwarding policy ID.
listener_id	String	Specifies the ID of the listener to which the forwarding policy is added.

Parameter	Type	Description
name	String	Specifies the forwarding policy name. Minimum: <b>1</b> Maximum: <b>255</b>
position	Integer	Specifies the forwarding policy priority. This parameter cannot be updated. This parameter is unsupported. Please do not use it. Minimum: <b>1</b> Maximum: <b>100</b>

Parameter	Type	Description
priority	Integer	<p>Specifies the forwarding policy priority. A smaller value indicates a higher priority. The value must be unique for each forwarding policy of the same listener.</p> <p>This parameter is available only for dedicated load balancers and will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the value can only be <b>0</b>, indicating that <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>false</b>, forwarding policies are automatically prioritized based on the original sorting logic. Forwarding policy priorities are independent of each other regardless of domain names. If forwarding policies use the same domain name, their priorities follow the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If prefix match is used for matching, the longer the path, the higher the priority. If a forwarding policy contains only a domain name without a path specified, the path is <b>/</b>, and prefix match is used by default.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>true</b> and this parameter is not passed, the priority will set to a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. There will be two cases:<ol style="list-style-type: none"><li>a) If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to create because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, please specify a value or adjust the priorities of existing forwarding policies.</li><li>b) If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li></ol></li></ul>

Parameter	Type	Description
		For shared load balancers, this parameter is unsupported.
project_id	String	Specifies the project ID of the forwarding policy.
provisioning_status	String	Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> or <b>ERROR</b> . <ul style="list-style-type: none"><li>• <b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li><li>• <b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li></ul>
redirect_pool_id	String	Specifies the ID of the backend server group that requests will be forwarded to. This parameter is valid and mandatory only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
redirect_listener_id	String	Specifies the ID of the listener to which requests are redirected. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> . Note: <ul style="list-style-type: none"><li>• The listener's protocol must be HTTPS or TERMINATED_HTTPS.</li><li>• A listener added to another load balancer is not allowed.</li><li>• This parameter cannot be passed in the API for adding or updating a forwarding policy if <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</li></ul>
redirect_url	String	Specifies the URL to which requests are forwarded. Format: <i>protocol://host:port/path?query</i> This parameter is unsupported. Please do not use it.
rules	Array of <b>RuleRef</b> objects	Lists the forwarding rules in the forwarding policy.

Parameter	Type	Description
redirect_url_config	<a href="#">RedirectUrlConfig</a> object	<p>Specifies the URL to which requests are forwarded.</p> <p>For dedicated load balancers, this parameter will take effect only when advanced forwarding is enabled (<b>enhance_l7policy_enable</b> is set to <b>true</b>). If it is passed when <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_URL</b>. It cannot be specified if the value of <b>action</b> is not <b>REDIRECT_TO_URL</b>.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>At least one of the four parameters (<b>protocol</b>, <b>host</b>, <b>port</b>, and <b>path</b>) must be passed, or their values cannot be set to <b>\${xxx}</b> at the same time. (<b>\${xxx}</b> indicates that the value in the request will be inherited. For example, <b>\${host}</b> indicates the host in the URL to be redirected.) The values of <b>protocol</b> and <b>port</b> cannot be the same as those of the associated listener, and either <b>host</b> or <b>path</b> must be passed or their values cannot be <b>\${xxx}</b> at the same time. For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
redirect_pools_config	Array of <a href="#">RedirectPoolsConfig</a> objects	Specifies the backend server groups that requests are forwarded to. A maximum of 5 backend server groups can be configured for a forwarding policy.
redirect_pools_sticky_session_config	<a href="#">RedirectPoolsStickySessionConfig</a> object	<p>Specifies whether to enable sticky session for backend server groups configured for a forwarding policy. The load balancer generates a cookie after it receives a request from a client. All subsequent requests with the same cookie are routed to the same backend server groups.</p> <p>This parameter is unsupported for shared load balancers. If it is passed, an error will be returned.</p>
redirect_pools_extend_config	<a href="#">RedirectPoolsExtendConfig</a> object	Specifies the backend server group that the requests are forwarded to. This parameter is valid only when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .

Parameter	Type	Description
fixed_response_config	<b>FixedResponseConfig</b> object	<p>Specifies the configuration of the page that will be returned. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>FIXED_RESPONSE</b>. It cannot be specified if the value of <b>action</b> is not <b>FIXED_RESPONSE</b>.</p> <p>For shared load balancers, this parameter is unsupported. If it is passed, an error will be returned.</p>
created_at	String	<p>Specifies the time when the forwarding policy was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the forwarding policy was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-448** RuleRef

Parameter	Type	Description
id	String	Specifies the forwarding rule ID.

**Table 5-449** RedirectUrlConfig

Parameter	Type	Description
protocol	String	Specifies the protocol for redirection. The value can be <b>HTTP</b> , <b>HTTPS</b> , or <b>\${protocol}</b> . The default value is <b>\${protocol}</b> , indicating that the protocol of the request will be used. Minimum: <b>1</b> Maximum: <b>36</b>
host	String	Specifies the host name that requests are redirected to. The value can contain only letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. The default value is <b>\${host}</b> , indicating that the host of the request will be used. Default: <b>\${host}</b> Minimum: <b>1</b> Maximum: <b>128</b>
port	String	Specifies the port that requests are redirected to. The default value is <b>\${port}</b> , indicating that the port of the request will be used. Default: <b>\${port}</b> Minimum: <b>1</b> Maximum: <b>16</b>
path	String	Specifies the path that requests are redirected to. The default value is <b>\${path}</b> , indicating that the path of the request will be used. The value can contain only letters, digits, and special characters <code>_-'@^-%#&amp;\$.*+?,=!: /()[]{} </code> and must start with a slash (/). Default: <b>\${path}</b> Minimum: <b>1</b> Maximum: <b>128</b>

Parameter	Type	Description
query	String	<p>Specifies the query string set in the URL for redirection. The default value is <b>#{query}</b>, indicating that the query string of the request will be used.</p> <p>For example, in the URL <b>https://www.example.com:8080/elb?type=loadbalancer, #{query}</b> indicates <b>type=loadbalancer</b>. If this parameter is set to <b>#{query}&amp;name=my_name</b>, the URL will be redirected to <b>https://www.example.com:8080/elb?type=loadbalancer&amp;name=my_name</b>.</p> <p>The value is case-sensitive and can contain only letters, digits, and special characters ! \$&amp;'()*+,-./:;=?@^_`</p> <p>Default: <b>#{query}</b></p> <p>Minimum: <b>0</b></p> <p>Maximum: <b>128</b></p>
status_code	String	<p>Specifies the status code returned after the requests are redirected.</p> <p>The value can be <b>301, 302, 303, 307, or 308</b>.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>16</b></p>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-450** RedirectPoolsConfig

Parameter	Type	Description
pool_id	String	Specifies the ID of the backend server group.



Parameter	Type	Description
weight	Integer	Specifies the weight of the backend server group. The value ranges from <b>0</b> to <b>100</b> . Requests are routed to backend server groups based on their weights. Backend server groups with higher weights receive proportionately more requests. No requests will be routed to a backend server group with a weight of 0.  Minimum: <b>0</b> Maximum: <b>100</b>

**Table 5-451** RedirectPoolsStickySessionConfig

Parameter	Type	Description
enable	Boolean	Specifies whether to enable sticky session for backend server groups configured in a forwarding policy. The default value is <b>false</b> , indicating that sticky session is disabled.  Default: <b>false</b>
timeout	Integer	Specifies the duration that a session persists. The value ranges from <b>1</b> to <b>1440</b> (default), in minutes.

**Table 5-452** RedirectPoolsExtendConfig

Parameter	Type	Description
rewrite_url_enable	Boolean	Specifies whether to set <b>rewrite_url_enable</b> to <b>true</b> .
rewrite_url_config	<b>RewriteUrlConfig</b> object	Specifies the URL for the backend server group that requests are forwarded to. This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-453** RewriteUrlConfig

Parameter	Type	Description
host	String	<p>Specifies the domain name that requests are redirected to. The domain name can contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</p> <p>The default value is <b>`\${host}</b>, indicating that the host of the request will be used.</p>
path	String	<p>Specifies the path that requests are redirected to.</p> <p>The value can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.+?,:! \/()</code> and must start with a slash (/). <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (<code>*</code>) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>`\${123}</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>`\${#}</b>.</p> <p>The default value is <b>`\${path}</b>, indicating that the path of the request will be used.</p>
query	String	<p>Specifies the query string set in the URL for redirection. The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'()*+,-./:;=?@^_`</code>. <code>\$1</code>, <code>\$2</code>, <code>\$3</code>, and all the way to <code>\$9</code> match the wildcard asterisk (<code>*</code>) in the request URL. If the number of regular expression match groups is less than the specified number, <b>`\${path}</b> is empty. If the dollar sign (\$) is followed by a letter, the matching result is empty until the next special character appears, for example, <b>`\${abc}#123</b>, and the matching result is <b>`\${123}</b>. If the dollar sign (\$) is followed by a special character, for example, <b>`\${#}</b>, the matching result is <b>`\${#}</b>.</p> <p>The default value is <b>`\${query}</b>, indicating that the query string of the request will be used.</p>

**Table 5-454** FixtedResponseConfig

Parameter	Type	Description
status_code	String	Specifies the HTTP status code configured in the forwarding policy. The value can be any integer in the range of 200–299, 400–499, or 500–599.  Minimum: <b>1</b> Maximum: <b>16</b>
content_type	String	Specifies the format of the response body. The value can be <b>text/plain</b> , <b>text/css</b> , <b>text/html</b> , <b>application/javascript</b> , or <b>application/json</b> .  Minimum: <b>0</b> Maximum: <b>32</b>
message_body	String	Specifies the content of the response message body.  Minimum: <b>0</b> Maximum: <b>1024</b>
insert_headers_config	<b>InsertHeadersConfig</b> object	Specifies the headers you want to write into the request that matches the condition.
remove_headers_config	<b>RemoveHeadersConfig</b> object	Specifies the headers you want to remove from the request that matches the condition.
traffic_limit_config	<b>TrafficLimitConfig</b> object	Specifies how requests are limited.

**Table 5-455** InsertHeadersConfig

Parameter	Type	Description
configs	Array of <b>InsertHeaderConfig</b> objects	Specifies the headers you want to write into the request that matches the condition.

**Table 5-456** InsertHeaderConfig

Parameter	Type	Description
key	String	Specifies the key of the header you want to write into the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.
value_type	String	Specifies the value type. The value can be <b>USER_DEFINED</b> , <b>REFERENCE_HEADER</b> , or <b>SYSTEM_DEFINED</b> .
value	String	Specifies the value of the header. If <b>value_type</b> is set to <b>SYSTEM_DEFINED</b> , the value can be <b>CLIENT-PORT</b> , <b>CLIENT-IP</b> , <b>ELB-PROTOCOL</b> , <b>ELB-ID</b> , <b>ELB-PORT</b> , <b>ELB-EIP</b> , or <b>ELB-VIP</b> . The value can contain 1 to 128 characters. The value can contain 1 to 128 characters. ASCII codes 32 through 127 printable characters, asterisks (*), and question marks (?) are also supported. The value cannot start or end with a space.

**Table 5-457** RemoveHeadersConfig

Parameter	Type	Description
configs	Array of <a href="#">RemoveHeaderConfig</a> objects	Specifies the headers you want to remove from the request that matches the condition.

**Table 5-458** RemoveHeaderConfig

Parameter	Type	Description
key	String	Specifies the header you want to remove from the request that matches the condition. The value is a string of 1 to 40 case-insensitive characters. Only letters, digits, hyphens (-), and underscores (_) are allowed. The key cannot be the following: connection, upgrade, content-length, transfer-encoding, keep-alive, te, host, cookie, remoteip, authority, x-forwarded-host, x-forwarded-for, x-forwarded-for-port, x-forwarded-tls-certificate-id, x-forwarded-tls-protocol, x-forwarded-tls-cipher, x-forwarded-elb-ip, x-forwarded-port, x-forwarded-elb-id, x-forwarded-elb-vip, x-real-ip, x-forwarded-proto, x-nuwa-trace-ne-in, or x-nuwa-trace-ne-out.

**Table 5-459** TrafficLimitConfig

Parameter	Type	Description
qps	Integer	Specifies the maximum number of queries per second (QPS). The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. Minimum: <b>0</b> Maximum: <b>100000</b>
per_source_ip_qps	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. This parameter is not available for QUIC listeners. The value can be <b>0</b> or <b>null</b> . The value ranges from <b>0</b> to <b>1,00,000</b> . <b>0</b> indicates that QPS is not limited. If <b>qps</b> is not set to <b>0</b> , <b>per_source_ip_qps</b> must be specified a smaller value than <b>qps</b> . Minimum: <b>0</b> Maximum: <b>100000</b>
burst	Integer	Specifies the maximum number of queries per second (QPS) from a source IP address. The value ranges from <b>0</b> to <b>1,00,000</b> . If the number of requests exceeds the value specified for <b>qps</b> but not reaches the value specified for <b>burst</b> , 503 status code will not be returned. Minimum: <b>0</b> Maximum: <b>100000</b>

## Example Requests

### Modifying a forwarding policy

```
PUT https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be
{
  "l7policy": {
    "name": "My policy.",
    "description": "Update policy.",
    "redirect_listener_id": "48a97732-449e-4aab-b561-828d29e45050"
  }
}
```

## Example Responses

### Status code: 200

Successful request.

```
{
  "request_id": "e5c07525-1470-47b6-9b0c-567527a036aa",
  "l7policy": {
    "redirect_pool_id": "768e9e8c-e7cb-4fef-b24b-af9399dbb240",
    "description": "",
    "admin_state_up": true,
    "rules": [ {
      "id": "c5c2d625-676b-431e-a4c7-c59cc2664881"
    } ],
    "project_id": "7a9941d34fc1497d8d0797429ecfd354",
    "listener_id": "cdb03a19-16b7-4e6b-bfec-047aeec74f56",
    "redirect_url": null,
    "redirect_url_config": null,
    "redirect_pools_config": {
      "pool_id": "722e9e8c-e7cb-4fef-b24b-af9399dbb240",
      "weight": 12
    },
    "redirect_pools_sticky_session_config": {
      "timeout": 23,
      "enable": false
    },
    "fixed_response_config": null,
    "redirect_listener_id": null,
    "action": "REDIRECT_TO_POOL",
    "position": 100,
    "priority": null,
    "provisioning_status": "ACTIVE",
    "id": "01832d99-bbd8-4340-9d0c-6ff8f7a37307",
    "name": "l7policy-67"
  }
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.12.5 Deleting a Forwarding Policy

### Function

This API is used to delete a forwarding policy.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/l7policies/{l7policy\_id}

**Table 5-460** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
l7policy_id	Yes	String	Specifies the forwarding policy ID.

### Request Parameters

**Table 5-461** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

None

### Example Requests

Delete a given forwarding policy

```
DELETE https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be
```

### Example Responses

None

## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

## 5.12.6 Batch Updating Forwarding Policy Priorities

### Function

This API is used to batch update the priorities of forwarding policies.

### Constraints

This API is only used to update the priorities of forwarding policies added to a listener of a dedicated load balancer when **action** is set to **REDIRECT\_TO\_POOL**.

### Calling Method

For details, see [Calling APIs](#).

### URI

POST /v3/{project\_id}/elb/l7policies/batch-update-priority

**Table 5-462** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

### Request Parameters

**Table 5-463** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.



**Table 5-464** Request body parameters

Parameter	Mandatory	Type	Description
l7policies	No	Array of <a href="#">BatchUpdatePriorityRequestBody</a> objects	Specifies the forwarding policy.

**Table 5-465** BatchUpdatePriorityRequestBody

Parameter	Mandatory	Type	Description
id	Yes	String	Specifies the ID of the forwarding policy. Minimum: <b>1</b> Maximum: <b>36</b>

Parameter	Mandatory	Type	Description
priority	Yes	Integer	<p>Specifies the forwarding policy priority. A smaller value indicates a higher priority. The value must be unique for each forwarding policy of the same listener.</p> <p>This parameter is available only for dedicated load balancers and will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>. If this parameter is passed and <b>enhance_l7policy_enable</b> is set to <b>false</b>, an error will be returned.</p> <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, the value can only be <b>0</b>, indicating that <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is set to <b>false</b>, forwarding policies are automatically prioritized based on the original sorting logic. Forwarding policy priorities are independent of each other regardless of domain names. If forwarding policies use the same domain name, their priorities follow the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If prefix match is used for matching, the longer the path, the higher the priority. If a forwarding policy contains only a domain name without a path specified, the path is <b>/</b>, and prefix match is used by default.</li></ul>

Parameter	Mandatory	Type	Description
			<ul style="list-style-type: none"> <li>If <b>enhance_l7policy_enable</b> is set to <b>true</b> and this parameter is not passed, the priority will set to a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. There will be two cases:               <ol style="list-style-type: none"> <li>If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to create because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, please specify a value or adjust the priorities of existing forwarding policies.</li> <li>If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li> </ol>               For shared load balancers, this parameter is unsupported.                Minimum: <b>1</b>                Maximum: <b>10000</b> </li> </ul>

## Response Parameters

Status code: 202

Table 5-466 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the backend server.

## Example Requests

Batch updating the priorities of forwarding policies

```
POST https://{ELB_Endpoint}/v3/060576782980d5762f9ec014dd2f1148/elb/l7policies/batch-update-priority
```

```
{
  "l7policies" : [ {
    "id" : "1fe93e12-6e07-47a9-8f81-3346c015601d",
    "priority" : 11
  } ]
}
```

## Example Responses

Status code: 202

Created

```
{
  "request_id" : "e5c07525-1470-47b6-9b0c-567527a036aa"
}
```

## Status Codes

Status Code	Description
202	Created

## Error Codes

See [Error Codes](#).

# 5.13 Forwarding Rule

## 5.13.1 Adding a Forwarding Rule

### Function

This API is used to add a forwarding rule.

### Constraints

If the action of **l7policy** is set to **Redirect to another listener**, **l7rule** cannot be created.

### Calling Method

For details, see [Calling APIs](#).

### URI

POST /v3/{project\_id}/elb/l7policies/{l7policy\_id}/rules

**Table 5-467** Path Parameters

Parameter	Mandatory	Type	Description
l7policy_id	Yes	String	Specifies the forwarding policy ID.
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-468** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-469** Request body parameters

Parameter	Mandatory	Type	Description
rule	Yes	<a href="#">CreateRuleOption</a> object	Specifies the forwarding rule.

**Table 5-470** CreateRuleOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> .  This parameter is unsupported. Please do not use it.

Parameter	Mandatory	Type	Description
compare_type	Yes	String	<p>Specifies how requests are matched with the forwarding rule. Values:</p> <ul style="list-style-type: none"><li>• <b>EQUAL_TO</b>: exact match.</li><li>• <b>REGEX</b>: regular expression match</li><li>• <b>STARTS_WITH</b>: prefix match</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can only be <b>EQUAL_TO</b>, and asterisks (*) can be used as wildcard characters.</li><li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>METHOD</b> or <b>SOURCE_IP</b>, the value can only be <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, the value can only be <b>EQUAL_TO</b>, asterisks (*) and question marks (?) can be used as wildcard characters.</li></ul>
key	No	String	<p>Specifies the key of match content. For example, if the request header is used for forwarding, <b>key</b> is the request header.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>0</b> Maximum: <b>255</b></p>

Parameter	Mandatory	Type	Description
value	Yes	String	<p>Specifies the value of the match content. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter is valid only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), periods (.), and asterisks (*) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li><li>• If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!: /() [] {}</code></li><li>• If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li></ul> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>
project_id	No	String	<p>Specifies the project ID.</p> <p>Minimum: <b>32</b> Maximum: <b>32</b></p>

Parameter	Mandatory	Type	Description
type	Yes	String	<p>Specifies the type of the forwarding rule. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: A domain name will be used for matching.</li> <li>• <b>PATH</b>: A URL will be used for matching.</li> <li>• <b>METHOD</b>: An HTTP request method will be used for matching.</li> <li>• <b>HEADER</b>: The request header will be used for matching.</li> <li>• <b>QUERY_STRING</b>: A query string will be used for matching.</li> <li>• <b>SOURCE_IP</b>: The source IP address will be used for matching.</li> <li>• <b>COOKIE</b>: A cookie will be used for matching.</li> </ul> <p>Note: If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, multiple forwarding rules can be created for each type.</p>
invert	No	Boolean	<p>Specifies whether reverse matching is supported. The value can be <b>true</b> or <b>false</b> (default).</p> <p>This parameter is unsupported. Please do not use it.</p>



Parameter	Mandatory	Type	Description
conditions	No	Array of <a href="#">CreateRuleCondition</a> objects	<p>Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b>.</p> <p>If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.</p>

**Table 5-471** CreateRuleCondition

Parameter	Mandatory	Type	Description
key	No	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({ }), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li></ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
value	Yes	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"> <li>If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (), <i>and must start with a letter, digit, or asterisk (^)</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+? ,=!: /() [] {}</code></li> <li>If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the</li> </ul>

Parameter	Mandatory	Type	Description
			<p>query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET, PUT, POST, DELETE, PATCH, HEAD, or OPTIONS</b>.</li> <li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4 or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.]</li> </ul> <p>All values of the condition list in a forwarding rule must be unique.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

## Response Parameters

Status code: 201

**Table 5-472** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
rule	<b>L7Rule</b> object	Specifies the forwarding rule.

**Table 5-473** L7Rule

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.
compare_type	String	Specifies how requests are matched with the domain name or URL. <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, this parameter can only be set to <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li></ul>
key	String	Specifies the key of the match content. This parameter will not take effect if <b>type</b> is set to <b>HOST_NAME</b> or <b>PATH</b> . Minimum: <b>1</b> Maximum: <b>255</b>
project_id	String	Specifies the project ID.

Parameter	Type	Description
type	String	<p>Specifies the type of the forwarding rule. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>HOST_NAME</b>: A domain name will be used for matching.</li> <li>● <b>PATH</b>: A URL will be used for matching.</li> <li>● <b>METHOD</b>: An HTTP request method will be used for matching.</li> <li>● <b>HEADER</b>: The request header will be used for matching.</li> <li>● <b>QUERY_STRING</b>: A query string will be used for matching.</li> <li>● <b>SOURCE_IP</b>: The source IP address will be used for matching.</li> <li>● <b>COOKIE</b>: A cookie will be used for matching.</li> </ul> <p>Note:</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, multiple forwarding rules can be created for each type.</p>
value	String	<p>Specifies the value of the match item. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter will take effect only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"> <li>● If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>● If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!\ /() [] {}</code></li> <li>● If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li> </ul> <p>Minimum: 1 Maximum: 128</p>

Parameter	Type	Description
provisioning_status	String	Specifies the provisioning status of the forwarding rule. The value can only be <b>ACTIVE</b> (default), <b>PENDING_CREATE</b> , or <b>ERROR</b> . This parameter is unsupported. Please do not use it.
invert	Boolean	Specifies whether reverse matching is supported. The value is fixed at <b>false</b> . This parameter can be updated but will not take effect.
id	String	Specifies the forwarding policy ID.
conditions	Array of <b>RuleCondition</b> objects	Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b> . If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.
created_at	String	Specifies the time when the forwarding rule was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when the forwarding rule was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.

**Table 5-474** RuleCondition

Parameter	Type	Description
key	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({ }), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li></ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>128</b></p>



Parameter	Type	Description
value	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (*), <i>and must start with a letter, digit, or asterisk ()</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>• If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!: /() [] {}</code></li> <li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET</b>, <b>PUT</b>, <b>POST</b>, <b>DELETE</b>, <b>PATCH</b>, <b>HEAD</b>, or <b>OPTIONS</b>.</li> <li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4</li> </ul>

Parameter	Type	Description
		or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.] All values of the condition list in a forwarding rule must be unique. Minimum: <b>1</b> Maximum: <b>128</b>

## Example Requests

Creating a forwarding rule and setting **type** to *PATH*\*

```
POST https://{ELB_Endpoint}/v3/{99a3fff0d03c428eac3678da6a7d0f24}/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be/rules
```

```
{
  "rule" : {
    "compare_type" : "EQUAL_TO",
    "type" : "PATH",
    "value" : "/bbb.html"
  }
}
```

## Example Responses

**Status code: 201**

Normal response to POST requests.

```
{
  "rule" : {
    "compare_type" : "EQUAL_TO",
    "provisioning_status" : "ACTIVE",
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "invert" : false,
    "admin_state_up" : true,
    "value" : "/bbb.html",
    "key" : null,
    "type" : "PATH",
    "id" : "84f4fcae-9c15-4e19-a99f-72c0b08fd3d7"
  },
  "request_id" : "3639f1b7-f04b-496e-9218-ec5a9e493f69"
}
```

## Status Codes

Status Code	Description
201	Normal response to POST requests.

## Error Codes

See [Error Codes](#).

## 5.13.2 Querying Forwarding Rules

### Function

This API is used to query all forwarding rules.

### Constraints

This API has the following constraints:

- Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query.
- Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/l7policies/{l7policy\_id}/rules

**Table 5-475** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
l7policy_id	Yes	String	Specifies the forwarding policy ID.

**Table 5-476** Query Parameters

Parameter	Mandatory	Type	Description
limit	No	Integer	Specifies the number of records on each page. Minimum: <b>0</b> Maximum: <b>2000</b> Default: <b>2000</b>

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the last record on the previous page. Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If this parameter is not specified, the first page will be queried.</li><li>• This parameter cannot be left blank or set to an invalid ID.</li></ul>
page_reverse	No	Boolean	Specifies whether to use reverse query. Values: <ul style="list-style-type: none"><li>• <b>true</b>: Query the previous page.</li><li>• <b>false</b> (default): Query the next page.</li></ul> Note: <ul style="list-style-type: none"><li>• This parameter must be used together with <b>limit</b>.</li><li>• If <b>page_reverse</b> is set to <b>true</b> and you want to query the previous page, set the value of <b>marker</b> to the value of <b>previous_marker</b>.</li></ul>
id	No	Array	Specifies the forwarding rule ID. Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .
compare_type	No	Array	Specifies how requests are matched with the domain names or URL. Values: <ul style="list-style-type: none"><li>• <b>EQUAL_TO</b>: exact match.</li><li>• <b>REGEX</b>: regular expression match</li><li>• <b>STARTS_WITH</b>: prefix match</li></ul> Multiple values can be queried in the format of <i>compare_type=xxx&amp;compare_type=xxx</i> .

Parameter	Mandatory	Type	Description
provisioning_status	No	Array	Specifies the provisioning status of the forwarding rule. The value can only be <b>ACTIVE</b> , indicating that the forwarding rule is provisioned successfully. Multiple provisioning statuses can be queried in the format of <i>provisioning_status=xxx&amp;provisioning_status=xxx</i> .
invert	No	Boolean	Specifies whether reverse matching is supported. The value is fixed at <b>false</b> . This parameter can be updated but remains invalid.
admin_state_up	No	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.
value	No	Array	Specifies the value of the match content. Multiple values can be queried in the format of <i>value=xxx&amp;value=xxx</i> .
key	No	Array	Specifies the key of the match content that is used to identify the forwarding rule. Multiple keys can be queried in the format of <i>key=xxx&amp;key=xxx</i> . This parameter is unsupported. Please do not use it.
type	No	Array	Specifies the match type. The value can be <b>HOST_NAME</b> or <b>PATH</b> . The type of forwarding rules for the same forwarding policy cannot be the same. Multiple types can be queried in the format of <i>type=xxx&amp;type=xxx</i> .

Parameter	Mandatory	Type	Description
enterprise_project_id	No	Array	<p>Specifies the enterprise project ID.</p> <ul style="list-style-type: none"><li>• If this parameter is not passed, resources in the default enterprise project are queried, and authentication is performed based on the default enterprise project.</li><li>• If this parameter is passed, its value can be the ID of an existing enterprise project (resources in the specific enterprise project are required) or <b>all_granted_eps</b> (resources in all enterprise projects are queried).</li></ul> <p>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i>.</p>

## Request Parameters

Table 5-477 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

## Response Parameters

Status code: 200

Table 5-478 Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
page_info	<a href="#">PageInfo</a> object	Shows pagination information.

Parameter	Type	Description
rules	Array of <a href="#">L7Rule</a> objects	Lists the forwarding rules.

**Table 5-479** PageInfo

Parameter	Type	Description
previous_marker	String	Specifies the ID of the first record in the pagination query result.
next_marker	String	Specifies the ID of the last record in the pagination query result.
current_count	Integer	Specifies the number of records.

**Table 5-480** L7Rule

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.
compare_type	String	Specifies how requests are matched with the domain name or URL. <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, this parameter can only be set to <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li></ul>
key	String	Specifies the key of the match content. This parameter will not take effect if <b>type</b> is set to <b>HOST_NAME</b> or <b>PATH</b> . Minimum: <b>1</b> Maximum: <b>255</b>
project_id	String	Specifies the project ID.

Parameter	Type	Description
type	String	<p>Specifies the type of the forwarding rule. The value can be one of the following:</p> <ul style="list-style-type: none"><li>● <b>HOST_NAME</b>: A domain name will be used for matching.</li><li>● <b>PATH</b>: A URL will be used for matching.</li><li>● <b>METHOD</b>: An HTTP request method will be used for matching.</li><li>● <b>HEADER</b>: The request header will be used for matching.</li><li>● <b>QUERY_STRING</b>: A query string will be used for matching.</li><li>● <b>SOURCE_IP</b>: The source IP address will be used for matching.</li><li>● <b>COOKIE</b>: A cookie will be used for matching.</li></ul> <p>Note:</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, multiple forwarding rules can be created for each type.</p>
value	String	<p>Specifies the value of the match item. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter will take effect only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"><li>● If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li><li>● If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!\ /() [] {}</code></li><li>● If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li></ul> <p>Minimum: 1 Maximum: 128</p>



Parameter	Type	Description
provisioning_status	String	Specifies the provisioning status of the forwarding rule. The value can only be <b>ACTIVE</b> (default), <b>PENDING_CREATE</b> , or <b>ERROR</b> . This parameter is unsupported. Please do not use it.
invert	Boolean	Specifies whether reverse matching is supported. The value is fixed at <b>false</b> . This parameter can be updated but will not take effect.
id	String	Specifies the forwarding policy ID.
conditions	Array of <b>RuleCondition</b> objects	Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b> . If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.
created_at	String	Specifies the time when the forwarding rule was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when the forwarding rule was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.

**Table 5-481** RuleCondition

Parameter	Type	Description
key	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({ }), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li></ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>128</b></p>

Parameter	Type	Description
value	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (*), <i>and must start with a letter, digit, or asterisk ()</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li><li>• If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!: /() [] {}</code></li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li><li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET</b>, <b>PUT</b>, <b>POST</b>, <b>DELETE</b>, <b>PATCH</b>, <b>HEAD</b>, or <b>OPTIONS</b>.</li><li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4</li></ul>

Parameter	Type	Description
		or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.] All values of the condition list in a forwarding rule must be unique. Minimum: <b>1</b> Maximum: <b>128</b>

## Example Requests

Querying forwarding rules

```
GET https://{ELB_Endpoint}/v3/{99a3fff0d03c428eac3678da6a7d0f24}/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be/rules
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "rules": [ {
    "compare_type": "STARTS_WITH",
    "provisioning_status": "ACTIVE",
    "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
    "invert": false,
    "admin_state_up": true,
    "value": "/ccc.html",
    "key": null,
    "type": "PATH",
    "id": "84f4fcae-9c15-4e19-a99f-72c0b08fd3d7"
  } ],
  "page_info": {
    "previous_marker": "84f4fcae-9c15-4e19-a99f-72c0b08fd3d7",
    "current_count": 1
  },
  "request_id": "ae4dbd7d-9271-4040-98b6-3bfe45bb15ee"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.13.3 Viewing Details of a Forwarding Rule

### Function

This API is used to view details of a forwarding rule.

### Calling Method

For details, see [Calling APIs](#).

### URI

GET /v3/{project\_id}/elb/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 5-482** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
l7policy_id	Yes	String	Specifies the forwarding policy.
l7rule_id	Yes	String	Specifies the forwarding rule.

### Request Parameters

**Table 5-483** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

**Status code: 200**

**Table 5-484** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
rule	<a href="#">L7Rule</a> object	Specifies the forwarding rule.

Table 5-485 L7Rule

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.
compare_type	String	Specifies how requests are matched with the domain name or URL. <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, this parameter can only be set to <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li></ul>
key	String	Specifies the key of the match content. This parameter will not take effect if <b>type</b> is set to <b>HOST_NAME</b> or <b>PATH</b> . Minimum: <b>1</b> Maximum: <b>255</b>
project_id	String	Specifies the project ID.
type	String	Specifies the type of the forwarding rule. The value can be one of the following: <ul style="list-style-type: none"><li>• <b>HOST_NAME</b>: A domain name will be used for matching.</li><li>• <b>PATH</b>: A URL will be used for matching.</li><li>• <b>METHOD</b>: An HTTP request method will be used for matching.</li><li>• <b>HEADER</b>: The request header will be used for matching.</li><li>• <b>QUERY_STRING</b>: A query string will be used for matching.</li><li>• <b>SOURCE_IP</b>: The source IP address will be used for matching.</li><li>• <b>COOKIE</b>: A cookie will be used for matching.</li></ul> Note: If <b>type</b> is set to <b>HOST_NAME</b> , <b>PATH</b> , <b>METHOD</b> , or <b>SOURCE_IP</b> , only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b> , multiple forwarding rules can be created for each type.

Parameter	Type	Description
value	String	<p>Specifies the value of the match item. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter will take effect only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>• If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=:\ /()[]{}</code></li> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li> </ul> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>
provisioning_status	String	<p>Specifies the provisioning status of the forwarding rule.</p> <p>The value can only be <b>ACTIVE</b> (default), <b>PENDING_CREATE</b>, or <b>ERROR</b>.</p> <p>This parameter is unsupported. Please do not use it.</p>
invert	Boolean	<p>Specifies whether reverse matching is supported. The value is fixed at <b>false</b>. This parameter can be updated but will not take effect.</p>
id	String	<p>Specifies the forwarding policy ID.</p>
conditions	Array of <b>RuleCondition</b> objects	<p>Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b>.</p> <p>If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.</p>

Parameter	Type	Description
created_at	String	<p>Specifies the time when the forwarding rule was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>
updated_at	String	<p>Specifies the time when the forwarding rule was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p> <p>This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.</p>

**Table 5-486** RuleCondition

Parameter	Type	Description
key	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li> <li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li> <li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li> </ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>



Parameter	Type	Description
value	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (*), <i>and must start with a letter, digit, or asterisk ()</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>• If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!: /() [] {}</code></li> <li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET</b>, <b>PUT</b>, <b>POST</b>, <b>DELETE</b>, <b>PATCH</b>, <b>HEAD</b>, or <b>OPTIONS</b>.</li> <li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4</li> </ul>

Parameter	Type	Description
		or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.] All values of the condition list in a forwarding rule must be unique. Minimum: <b>1</b> Maximum: <b>128</b>

## Example Requests

Querying details of a given forwarding rule

```
GET https://{ELB_Endpoint}/v3/{99a3fff0d03c428eac3678da6a7d0f24}/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be/rules/84f4fcae-9c15-4e19-a99f-72c0b08fd3d7
```

## Example Responses

**Status code: 200**

OK

```
{
  "rule" : {
    "compare_type" : "STARTS_WITH",
    "provisioning_status" : "ACTIVE",
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "invert" : false,
    "admin_state_up" : true,
    "value" : "/ccc.html",
    "key" : null,
    "type" : "PATH",
    "id" : "84f4fcae-9c15-4e19-a99f-72c0b08fd3d7"
  },
  "request_id" : "0d799435-259e-459f-b2bc-0beee06f6a77"
}
```

## Status Codes

Status Code	Description
200	OK

## Error Codes

See [Error Codes](#).

## 5.13.4 Updating a Forwarding Rule

### Function

This API is used to update a forwarding rule.

## Calling Method

For details, see [Calling APIs](#).

## URI

PUT /v3/{project\_id}/elb/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 5-487** Path Parameters

Parameter	Mandatory	Type	Description
l7policy_id	Yes	String	Specifies the forwarding policy ID.
l7rule_id	Yes	String	Specifies the forwarding rule ID.
project_id	Yes	String	Specifies the project ID.

## Request Parameters

**Table 5-488** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

**Table 5-489** Request body parameters

Parameter	Mandatory	Type	Description
rule	Yes	<a href="#">UpdateL7RuleOption</a> object	Specifies the forwarding rule.

**Table 5-490** UpdateL7RuleOption

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.

Parameter	Mandatory	Type	Description
compare_type	No	String	<p>Specifies how requests are matched with the forwarding rule. Values:</p> <ul style="list-style-type: none"><li>• <b>EQUAL_TO</b>: exact match.</li><li>• <b>REGEX</b>: regular expression match</li><li>• <b>STARTS_WITH</b>: prefix match</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can only be <b>EQUAL_TO</b>, and asterisks (*) can be used as wildcard characters.</li><li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>METHOD</b> or <b>SOURCE_IP</b>, the value can only be <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, the value can only be <b>EQUAL_TO</b>, asterisks (*) and question marks (?) can be used as wildcard characters.</li></ul>
invert	No	Boolean	<p>Specifies whether reverse matching is supported. The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is unsupported. Please do not use it.</p>
key	No	String	<p>Specifies the key of the match item. For example, if an HTTP header is used for matching, <b>key</b> is the name of the HTTP header parameter.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Minimum: <b>0</b> Maximum: <b>255</b></p>

Parameter	Mandatory	Type	Description
value	No	String	<p>Specifies the value of the match item. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter will take effect only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li><li>• If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~' ;@^-%#&amp;\$. * +?,=!:  \ ( ) [ ] { }</code></li><li>• If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li></ul> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
conditions	No	Array of <a href="#">UpdateRuleCondition</a> objects	<p>Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b>.</p> <p>If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.</p>

**Table 5-491** UpdateRuleCondition

Parameter	Mandatory	Type	Description
key	No	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({ }), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li></ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

Parameter	Mandatory	Type	Description
value	No	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"> <li>If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (), <i>and must start with a letter, digit, or asterisk (^)</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+? ,=!: /() [] {}</code></li> <li>If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the</li> </ul>



Parameter	Mandatory	Type	Description
			<p>query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET</b>, <b>PUT</b>, <b>POST</b>, <b>DELETE</b>, <b>PATCH</b>, <b>HEAD</b>, or <b>OPTIONS</b>.</li> <li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4 or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.]</li> </ul> <p>All values of the condition list in a forwarding rule must be unique.</p> <p>Minimum: <b>1</b> Maximum: <b>128</b></p>

## Response Parameters

Status code: 200

**Table 5-492** Response body parameters

Parameter	Type	Description
request_id	String	Specifies the request ID. The value is automatically generated.
rule	<b>L7Rule</b> object	Specifies the forwarding rule.

**Table 5-493** L7Rule

Parameter	Type	Description
admin_state_up	Boolean	Specifies the administrative status of the forwarding rule. The default value is <b>true</b> . This parameter is unsupported. Please do not use it.
compare_type	String	Specifies how requests are matched with the domain name or URL. <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, this parameter can only be set to <b>EQUAL_TO</b>.</li><li>• If <b>type</b> is set to <b>PATH</b>, the value can be <b>REGEX</b>, <b>STARTS_WITH</b>, or <b>EQUAL_TO</b>.</li></ul>
key	String	Specifies the key of the match content. This parameter will not take effect if <b>type</b> is set to <b>HOST_NAME</b> or <b>PATH</b> . Minimum: <b>1</b> Maximum: <b>255</b>
project_id	String	Specifies the project ID.

Parameter	Type	Description
type	String	<p>Specifies the type of the forwarding rule. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>HOST_NAME</b>: A domain name will be used for matching.</li> <li>● <b>PATH</b>: A URL will be used for matching.</li> <li>● <b>METHOD</b>: An HTTP request method will be used for matching.</li> <li>● <b>HEADER</b>: The request header will be used for matching.</li> <li>● <b>QUERY_STRING</b>: A query string will be used for matching.</li> <li>● <b>SOURCE_IP</b>: The source IP address will be used for matching.</li> <li>● <b>COOKIE</b>: A cookie will be used for matching.</li> </ul> <p>Note:</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> or <b>QUERY_STRING</b>, multiple forwarding rules can be created for each type.</p>
value	String	<p>Specifies the value of the match item. For example, if a domain name is used for matching, <b>value</b> is the domain name. This parameter will take effect only when <b>conditions</b> is left blank.</p> <ul style="list-style-type: none"> <li>● If <b>type</b> is set to <b>HOST_NAME</b>, the value can contain letters, digits, hyphens (-), and periods (.) and must start with a letter or digit. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>● If <b>type</b> is set to <b>PATH</b> and <b>compare_type</b> to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!\ /() [] {}</code></li> <li>● If <b>type</b> is set to <b>METHOD</b>, <b>SOURCE_IP</b>, <b>HEADER</b>, or <b>QUERY_STRING</b>, this parameter will not take effect, and <b>conditions</b> will be used to specify the key and value.</li> </ul> <p>Minimum: 1 Maximum: 128</p>

Parameter	Type	Description
provisioning_status	String	Specifies the provisioning status of the forwarding rule. The value can only be <b>ACTIVE</b> (default), <b>PENDING_CREATE</b> , or <b>ERROR</b> . This parameter is unsupported. Please do not use it.
invert	Boolean	Specifies whether reverse matching is supported. The value is fixed at <b>false</b> . This parameter can be updated but will not take effect.
id	String	Specifies the forwarding policy ID.
conditions	Array of <b>RuleCondition</b> objects	Specifies the matching conditions of the forwarding rule. This parameter is available only when <b>enhance_l7policy_enable</b> is set to <b>true</b> . If <b>conditions</b> is specified, parameters <b>key</b> and <b>value</b> will not take effect, and the <b>conditions</b> value will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique.
created_at	String	Specifies the time when the forwarding rule was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.
updated_at	String	Specifies the time when the forwarding rule was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). This is a new field in this version, and it will not be returned for resources associated with existing dedicated load balancers and for resources associated with existing and new shared load balancers.

**Table 5-494** RuleCondition

Parameter	Type	Description
key	String	<p>Specifies the key of match item.</p> <ul style="list-style-type: none"><li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, or <b>SOURCE_IP</b>, this parameter is left blank.</li><li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter. The value can contain 1 to 40 characters, including letters, digits, hyphens (-), and underscores (_).</li><li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({ }), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported.</li></ul> <p>All keys in the conditions list in the same rule must be the same.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>128</b></p>

Parameter	Type	Description
value	String	<p>Specifies the value of the match item.</p> <ul style="list-style-type: none"> <li>• If <b>type</b> is set to <b>HOST_NAME</b>, <b>key</b> is left blank, and <b>value</b> indicates the domain name, which can contain 1 to 128 characters, including letters, digits, hyphens (-), periods (.), and asterisks (*), <i>and must start with a letter, digit, or asterisk ()</i>. If you want to use a wildcard domain name, enter an asterisk (*) as the leftmost label of the domain name.</li> <li>• If <b>type</b> is set to <b>PATH</b>, <b>key</b> is left blank, and <b>value</b> indicates the request path, which can contain 1 to 128 characters. If <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b> for the forwarding rule, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!: /() [] {}</code></li> <li>• If <b>type</b> is set to <b>HEADER</b>, <b>key</b> indicates the name of the HTTP header parameter, and <b>value</b> indicates the value of the HTTP header parameter. The value can contain 1 to 128 characters. Asterisks (*) and question marks (?) are allowed, but spaces and double quotation marks are not allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>• If <b>type</b> is set to <b>QUERY_STRING</b>, <b>key</b> indicates the name of the query parameter, and <b>value</b> indicates the value of the query parameter. The value is case sensitive and can contain 1 to 128 characters. Spaces, square brackets ([ ]), curly brackets ({}), angle brackets (&lt; &gt;), backslashes (\), double quotation marks (" "), pound signs (#), ampersands (&amp;), vertical bars ( ), percent signs (%), and tildes (~) are not supported. Asterisks (*) and question marks (?) are allowed. An asterisk can match zero or more characters, and a question mark can match 1 character.</li> <li>• If <b>type</b> is set to <b>METHOD</b>, <b>key</b> is left blank, and <b>value</b> indicates the HTTP method. The value can be <b>GET</b>, <b>PUT</b>, <b>POST</b>, <b>DELETE</b>, <b>PATCH</b>, <b>HEAD</b>, or <b>OPTIONS</b>.</li> <li>• If <b>type</b> is set to <b>SOURCE_IP</b>, <b>key</b> is left blank, and <b>value</b> indicates the source IP address of the request. The value is an IPv4</li> </ul>

Parameter	Type	Description
		or IPv6 CIDR block, for example, 192.168.0.2/32 or 2049::49/64.] All values of the condition list in a forwarding rule must be unique. Minimum: <b>1</b> Maximum: <b>128</b>

## Example Requests

Modifying a forwarding rule

PUT https://{ELB\_Endpoint}/v3/{99a3fff0d03c428eac3678da6a7d0f24}/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be/rules/84f4fcae-9c15-4e19-a99f-72c0b08fd3d7

```
{
  "rule" : {
    "compare_type" : "STARTS_WITH",
    "value" : "/ccc.html"
  }
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "rule" : {
    "compare_type" : "STARTS_WITH",
    "provisioning_status" : "ACTIVE",
    "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
    "invert" : false,
    "admin_state_up" : true,
    "value" : "/ccc.html",
    "key" : null,
    "type" : "PATH",
    "id" : "84f4fcae-9c15-4e19-a99f-72c0b08fd3d7"
  },
  "request_id" : "133096f9-e754-430d-a2c2-e61fe1190aa8"
}
```

## Status Codes

Status Code	Description
200	Successful request.

## Error Codes

See [Error Codes](#).

## 5.13.5 Deleting a Forwarding Rule

### Function

This API is used to delete a forwarding rule.

### Calling Method

For details, see [Calling APIs](#).

### URI

DELETE /v3/{project\_id}/elb/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 5-495** Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
l7policy_id	Yes	String	Specifies the forwarding policy ID.
l7rule_id	Yes	String	Specifies the forwarding rule ID.

### Request Parameters

**Table 5-496** Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Specifies the token used for IAM authentication.

### Response Parameters

None

### Example Requests

Deleting a forwarding rule

```
DELETE https://{ELB_Endpoint}/v3/{99a3fff0d03c428eac3678da6a7d0f24}/elb/l7policies/cf4360fd-8631-41ff-a6f5-b72c35da74be/rules/84f4fcae-9c15-4e19-a99f-72c0b08fd3d7
```

### Example Responses

None



## Status Codes

Status Code	Description
204	Successful request.

## Error Codes

See [Error Codes](#).

# 6 Classic Load Balancer APIs

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## 6.1 Load Balancer

### 6.1.1 Creating a Load Balancer (Discarded)

#### Function

This API is used to create a load balancer.

#### URI

POST /v1.0/{project\_id}/elbaas/loadbalancers

**Table 6-1** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

#### Request

- Request parameters

**Table 6-2** Parameter description

Parameter	Mandatory	Type	Description
name	Yes	String	<ul style="list-style-type: none"><li>• Specifies the load balancer name.</li><li>• The value can contain 1 to 64 characters that consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
description	No	String	<ul style="list-style-type: none"><li>• Provides supplementary information about the load balancer.</li><li>• The value contains 0 to 128 characters and cannot contain angle brackets (&lt; and &gt;).</li></ul>
vpc_id	Yes	String	Specifies the VPC ID.
bandwidth	No	Integer	<ul style="list-style-type: none"><li>• Specifies the bandwidth (Mbit/s). This parameter is mandatory when <b>type</b> is set to <b>External</b>.</li><li>• The value ranges from <b>1</b> to <b>1000</b>. (The specific range may vary depending on the configuration in each region. You can see the bandwidth range of each region on the management console.)</li></ul>
type	Yes	String	<ul style="list-style-type: none"><li>• Specifies the network type of the load balancer.</li><li>• The value is <b>Internal</b> or <b>External</b>.</li></ul>

Parameter	Mandatory	Type	Description
admin_state_up	Yes	Integer/ Boolean	<ul style="list-style-type: none"><li>Specifies the administrative status of the load balancer.</li><li>Optional values:<ul style="list-style-type: none"><li><b>0</b> or <b>false</b>: indicates that the load balancer is stopped. Only users are allowed to enter the two values.</li><li><b>1</b> or <b>true</b> indicates that the load balancer is running properly.</li><li><b>2</b> or <b>false</b> indicates that the load balancer is frozen. Only the administrator is allowed to enter the two values.</li></ul></li></ul>
vip_subnet_id	No	String	Specifies the subnet ID of backend ECSs. This parameter is mandatory when <b>type</b> is set to <b>Internal</b> . Only IPv4 subnets can be specified.
az	No	String	Specifies the AZ of the load balancer. This parameter is invalid when type is set to <b>External</b> and is optional when type is set to <b>Internal</b> . If <b>type</b> is set to <b>Internal</b> and an AZ is specified, the specified AZ must support private network load balancers. Otherwise, an error message is returned. For more details, see <a href="#">Regions and Endpoints</a> .

Parameter	Mandatory	Type	Description
charge_mode	No	String	<ul style="list-style-type: none"><li>• Specifies how a new elastic IP address (EIP) is billed. This is a reserved parameter. If the system supports billing by traffic and this parameter is specified, the EIP will be billed by traffic.</li><li>• Specifies whether the EIP is billed by traffic or fixed bandwidth.</li><li>• The value is <b>traffic</b>.</li></ul>
eip_type	No	String	<ul style="list-style-type: none"><li>• This parameter is reserved.</li></ul>
security_group_id	No	String	<ul style="list-style-type: none"><li>• Specifies the security group ID.</li><li>• The value can contain 1 to 200 characters that consists of letters, digits, and hyphens (-).</li><li>• This parameter is mandatory if the value of <b>type</b> is <b>Internal</b>, while it is ignored when the value of <b>type</b> is <b>External</b>.</li></ul>

Parameter	Mandatory	Type	Description
vip_address	No	String	<ul style="list-style-type: none"><li>Specifies the private IP address of the load balancer. When <b>type</b> is set to <b>External</b>, the parameter value is the EIP. When <b>type</b> is set to <b>Internal</b>, the parameter value is the private network IP address.</li><li>You can select an existing EIP to create a public network load balancer. When this parameter is configured, parameters <b>bandwidth</b>, <b>charge_mode</b>, and <b>eip_type</b> are invalid.</li></ul>
tenantId	No	String	<ul style="list-style-type: none"><li>Specifies the project ID.</li><li>This parameter is mandatory when <b>type</b> is set to <b>Internal</b>.</li></ul>

- Example request 1

```
{
  "name": "loadbalancer1",
  "description": "simple lb",
  "vpc_id": "f54a3ffd-7a55-4568-9e3d-f0ff2d46a107",
  "bandwidth": 200,
  "type": "External",
  "admin_state_up": true
}
```

- Example request 2

```
{
  "name": "loadbalancer1",
  "description": "simple lb",
  "vpc_id": "f54a3ffd-7a55-4568-9e3d-f0ff2d46a107",
  "vip_address": "192.144.164.74",
  "type": "External",
  "admin_state_up": true
}
```

## Response

- Response parameters

**Table 6-3** Parameter description

Parameter	Type	Description
uri	String	Specifies the URI returned by Combined API after the job for creating a load balancer is delivered.
job_id	String	Specifies the unique ID assigned to the job for creating a load balancer in Combined API.

- Example response

```
{
  "uri": "/v1/73cd9140bec7427ab9952b4ed75924e0/jobs/4010b39b4fbb4645014fcfc8f2d178d1",
  "job_id": "4010b39b4fbb4645014fcfc8f2d178d1"
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.1.2 Deleting a Load Balancer

### Function

This API is used to delete a load balancer. If the load balancer is a public network load balancer, this API deletes the EIP bound to the load balancer.

### Constraints

For a public network load balancer, you need to delete the backend ECSs added to all listeners of the load balancer before deleting it.

## URI

DELETE /v1.0/{project\_id}/elbaas/loadbalancers/{loadbalancer\_id}

**Table 6-4** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	Yes	String	Specifies the load balancer ID.

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters

**Table 6-5** Parameter description

Parameter	Type	Description
uri	String	Specifies the URI returned by Combined API after the job for deleting a load balancer is delivered.
job_id	String	Specifies the unique ID assigned to the job for deleting a load balancer in Combined API.

- Example response

```
{
  "uri": "/v1/73cd9140bec7427ab9952b4ed75924e0/jobs/4010b39c4fbb4649014fcfd2ab7903b0",
  "job_id": "4010b39c4fbb4649014fcfd2ab7903b0"
}
```

## Status Code

- Normal  
200
- Error



Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.1.3 Deleting a Public Network Load Balancer

### Function

This API is used to delete a public network load balancer. The EIP bound to the load balancer will not be deleted. If you need to delete this IP address, refer to [Deleting a Load Balancer](#).

### Constraints

Before deleting a public network load balancer, you must remove all backend ECSs from the listener. This API cannot be used to delete a private network load balancer.

### URI

DELETE /v1.0/{project\_id}/elbaas/loadbalancers/{loadbalancer\_id}/keep-eip

**Table 6-6** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	Yes	String	Specifies the load balancer ID.

### Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters

**Table 6-7** Parameter description

Parameter	Type	Description
uri	String	Specifies the URI returned by Combined API after the job for deleting a load balancer is delivered.
job_id	String	Specifies the unique ID assigned to the job for deleting a load balancer in Combined API.

- Example response

```
{
  "uri": "/v1/8263303061de4b5d95c9cb68c3a257f4/jobs/ff808082615b23aa01616b90efc65298",
  "job_id": "ff808082615b23aa01616b90efc65298"
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisable	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.1.4 Modifying a Load Balancer

### Function

This API is used to modify the name, description, bandwidth, and administrative status of a load balancer.

## URI

PUT /v1.0/{project\_id}/elbaas/loadbalancers/{loadbalancer\_id}

**Table 6-8** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	Yes	String	Specifies the load balancer ID.
name	No	String	<ul style="list-style-type: none"><li>Specifies the load balancer name.</li><li>The value can contain 1 to 64 characters that consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
description	No	String	<ul style="list-style-type: none"><li>Provides supplementary information about the load balancer.</li><li>The value contains 0 to 128 characters and cannot contain angle brackets (&lt; and &gt;).</li></ul>
bandwidth	No	Integer	<ul style="list-style-type: none"><li>Specifies the bandwidth (Mbit/s). This parameter is mandatory when <b>type</b> is set to <b>External</b>.</li><li>The value ranges from . (The specific range may vary depending on the configuration in each region. You can see the bandwidth range of each region on the management console.)</li></ul>

Parameter	Mandatory	Type	Description
admin_state_up	No	Integer/ Boolean	<ul style="list-style-type: none"> <li>Specifies the administrative status of the load balancer.</li> <li>Optional values: <ul style="list-style-type: none"> <li><b>0</b> or <b>false</b>: indicates that the load balancer is stopped. Only users are allowed to enter the two values.</li> <li><b>1</b> or <b>true</b>: indicates that the load balancer is running properly.</li> <li><b>2</b> or <b>false</b>: indicates that the load balancer is frozen. Only the administrator is allowed to enter the two values.</li> </ul> </li> </ul>

## Request

- Request parameters  
None
- Example request

```
{
  "description": "simple lb",
  "name": "loadbalancer1",
  "bandwidth": 200,
  "admin_state_up": true
}
```

## Response

- Response parameters

**Table 6-9** Parameter description

Parameter	Type	Description
uri	String	Specifies the URI returned by Combined API after the job for modifying a load balancer is delivered.
job_id	String	Specifies the unique ID assigned to the job for modifying a load balancer in Combined API.

- Example response

```
{
  "uri": "/v1/73cd9140bec7427ab9952b4ed75924e0/jobs/4010b39d4fbb4645014fcddf4b32d15",
  "job_id": "4010b39d4fbb4645014fcddf4b32d15"
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.1.5 Querying Details of a Load Balancer

### Function

This API is used to query details about a load balancer.

### URI

GET /v1.0/{project\_id}/elbaas/loadbalancers/{loadbalancer\_id}

**Table 6-10** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	Yes	String	Specifies the load balancer ID.

### Request

- Request parameters  
None

- Example request  
None

## Response

- Response parameters

**Table 6-11** Parameter description

Parameter	Type	Description
vip_address	String	Specifies the private IP address of the load balancer.
update_time	String	Specifies the time when the load balancer was updated.
create_time	String	Specifies the time when the load balancer was created.
id	String	Specifies the load balancer ID.
status	String	<ul style="list-style-type: none"><li>• Specifies the load balancer status.</li><li>• The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li></ul>
bandwidth	Integer	Specifies the bandwidth (Mbit/s).
vpc_id	String	Specifies the VPC ID.
admin_state_up	Integer	<ul style="list-style-type: none"><li>• Specifies the administrative status of the load balancer.</li><li>• The following options are available: <b>0</b>: The load balancer is disabled. <b>1</b>: The load balancer is running properly. <b>2</b>: The load balancer is frozen.</li></ul>
vip_subnet_id	String	This parameter is unavailable now.

Parameter	Type	Description
type	String	Specifies the network type of the load balancer. The value is <b>External</b> .
name	String	Specifies the load balancer name.
description	String	Provides supplementary information about the load balancer.
security_group_id	String	<ul style="list-style-type: none"> <li>Specifies the security group ID.</li> <li><b>null</b> is displayed for this parameter when <b>type</b> is set to <b>External</b>.</li> </ul>

- Example response

```
{
  "vip_address": "192.144.62.114",
  "update_time": "2015-09-14 02:34:32",
  "create_time": "2015-09-14 02:34:32",
  "id": "0b07acf06d243925bc24a0ac7445267a",
  "status": "ACTIVE",
  "bandwidth": 1,
  "security_group_id": null,
  "vpc_id": "f54a3ffd-7a55-4568-9e3d-f0ff2d46a107",
  "admin_state_up": 1,
  "vip_subnet_id": null,
  "type": "External",
  "name": "MY_ELB",
  "description": null
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.

Status Code	Message	Description
503	serviceUnavailable	The service is unavailable.

## 6.1.6 Querying Load Balancers

### Function

This API is used to query load balancers and display them in a list.

### URI

GET /v1.0/{project\_id}/elbaas/loadbalancers

**Table 6-12** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

### Request

- Request parameters  
None
- Example request  
None

### Response

- Response parameters

**Table 6-13** Parameter description

Parameter	Type	Description
loadbalancers	Array	Lists the load balancers.
instance_num	String	Specifies the number of load balancers.

**Table 6-14** loadbalancers parameter description

Parameter	Type	Description
vip_address	String	Specifies the private IP address of the load balancer.



Parameter	Type	Description
update_time	String	Specifies the time when the load balancer was updated.
create_time	String	Specifies the time when the load balancer was created.
id	String	Specifies the load balancer ID.
status	String	<ul style="list-style-type: none"><li>Specifies the load balancer status.</li><li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li></ul>
bandwidth	Integer	Specifies the bandwidth (Mbit/s).
vpc_id	String	Specifies the VPC ID.
admin_state_up	Integer	<ul style="list-style-type: none"><li>Specifies the administrative status of the load balancer.</li><li>The following options are available:<ul style="list-style-type: none"><li><b>0</b>: The load balancer is disabled.</li><li><b>1</b>: The load balancer is running properly.</li><li><b>2</b>: The load balancer is frozen.</li></ul></li></ul>
vip_subnet_id	String	This parameter is unavailable now.
type	String	Specifies the network type of the load balancer. The value is <b>External</b> .
name	String	Specifies the load balancer name.
description	String	Provides supplementary information about the load balancer.
security_group_id	String	<ul style="list-style-type: none"><li>Specifies the security group ID.</li><li><b>null</b> is displayed for this parameter when <b>type</b> is set to <b>External</b>.</li></ul>

- Example response

```
{
  "loadbalancers": [
    {
      "vip_address": "192.144.62.114",
      "update_time": "2015-09-14 02:34:32",
      "create_time": "2015-09-14 02:34:32",
      "id": "0b07acf06d243925bc24a0ac7445267a",
      "status": "ACTIVE",
```

```

    "bandwidth": 1,
    "security_group_id": null,
    "vpc_id": "f54a3ffd-7a55-4568-9e3d-f0ff2d46a107",
    "admin_state_up": 1,
    "vip_subnet_id": null,
    "type": "External",
    "name": "MY_ELB",
    "description": null
  }
],
"instance_num": "1"
}

```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.2 Listener

### 6.2.1 Adding a Listener

#### Function

This API is used to add a listener to a load balancer.

#### URI

POST /v1.0/{project\_id}/elbaas/listeners

**Table 6-15** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

Parameter	Mandatory	Type	Description
name	Yes	String	<ul style="list-style-type: none"><li>Specifies the listener name.</li><li>The value can contain 1 to 64 characters that consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
description	No	String	<ul style="list-style-type: none"><li>Provides supplementary information about the listener.</li><li>The value contains 0 to 128 characters and cannot contain angle brackets (&lt; and &gt;).</li></ul>
loadbalancer_id	Yes	String	Specifies the load balancer ID.
protocol	Yes	String	<ul style="list-style-type: none"><li>Specifies the protocol used by the listener.</li><li>The value can be <b>HTTP</b>, <b>TCP</b>, <b>HTTPS</b>, or <b>UDP</b>.</li><li>A UDP listener cannot be added to a private network load balancer.</li></ul>
port	Yes	Integer	<ul style="list-style-type: none"><li>Specifies the port used by the listener.</li><li>The port number ranges from 1 to 65535.</li></ul>
backend_protocol	Yes	String	<ul style="list-style-type: none"><li>Specifies the backend ECS protocol. If <b>protocol</b> is set to <b>UDP</b>, the value of this parameter can only be <b>UDP</b>.</li><li>The value can be <b>HTTP</b>, <b>TCP</b>, or <b>UDP</b>.</li></ul>
backend_port	Yes	Integer	<ul style="list-style-type: none"><li>Specifies the port used by backend ECSs.</li><li>The port number ranges from 1 to 65535.</li></ul>
lb_algorithm	Yes	String	<ul style="list-style-type: none"><li>Specifies the load balancing algorithm.</li><li>The value can be <b>roundrobin</b>, <b>leastconn</b>, or <b>source</b>.</li></ul>

Parameter	Mandatory	Type	Description
session_sticky	No	Boolean	<ul style="list-style-type: none"><li>Specifies whether to enable the sticky session feature.</li><li>The value can be <b>true</b> or <b>false</b>. The feature is enabled when the value is <b>true</b>.</li><li>If <b>protocol</b> is set to <b>HTTP</b>, <b>HTTPS</b>, or <b>TCP</b> and <b>lb_algorithm</b> is not <b>roundrobin</b>, the value of this parameter can only be <b>false</b>.</li></ul>
sticky_session_type	No	String	<p>Specifies where the cookie is from. The only value is <b>insert</b>, indicating that the cookie is inserted by the load balancer.</p> <ul style="list-style-type: none"><li>This parameter takes effect when <b>protocol</b> is set to <b>HTTP</b> and <b>session_sticky</b> to <b>true</b>.</li><li>This parameter does not take effect when <b>protocol</b> is set to <b>TCP</b> or <b>UDP</b>, which means that the parameter is unavailable or its value is set to <b>null</b>.</li></ul>
cookie_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the cookie timeout duration. This parameter is valid when <b>protocol</b> is set to <b>HTTP</b>, <b>session_sticky</b> to <b>true</b>, and <b>sticky_session_type</b> to <b>insert</b>. This parameter is invalid when <b>protocol</b> is set to <b>TCP</b> or <b>UDP</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>
tcp_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the TCP session timeout duration. This parameter is valid when <b>protocol</b> is set to <b>TCP</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>

Parameter	Mandatory	Type	Description
tcp_draining	No	Boolean	<ul style="list-style-type: none"><li>Specifies whether to maintain TCP connections to a backend ECS that has been removed. This parameter is valid when <b>protocol</b> is set to <b>TCP</b>.</li><li>The value can be <b>true</b> or <b>false</b>.</li></ul>
tcp_draining_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the timeout duration for maintaining TCP connections to a backend ECS that has been removed in the unit of minute. This parameter is valid when <b>protocol</b> is set to <b>TCP</b> and <b>tcp_draining</b> to <b>true</b>.</li><li>The value ranges from <b>0</b> to <b>60</b>.</li></ul>
certificate_id	No	String	<ul style="list-style-type: none"><li>Specifies the certificate ID. This parameter is mandatory when <b>protocol</b> is set to <b>HTTPS</b>.</li><li>The ID can be obtained from the certificate list.</li></ul>
udp_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the UDP session timeout duration. This parameter is valid when <b>protocol</b> is set to <b>UDP</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>
ssl_protocols	No	String	<ul style="list-style-type: none"><li>Specifies the supported SSL/TLS protocol version. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b>.</li><li>The value can be <b>TLS 1.2</b> or <b>TLS 1.2 TLS 1.1 TLS 1.0</b>, and the default value is <b>TLS 1.2</b>.</li></ul>

Parameter	Mandatory	Type	Description
ssl_ciphers	No	String	<ul style="list-style-type: none"> <li>Specifies the cipher suites supported by a specific SSL/TLS protocol version. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b>.</li> <li>The value is <b>Default</b>, <b>Extended</b>, or <b>Strict</b>. The value of <b>Default</b> is <b>ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-RSA-AES256-SHA384:ECDHE-RSA-AES128-SHA256</b>. The value of <b>Extended</b> is <b>ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA</b>. The value of <b>Strict</b> is <b>ECDHE-RSA-AES256-GCM-SHA384:ECDHE-</b></li> </ul>

Parameter	Mandatory	Type	Description
			<p><b>RSA-AES128-GCM-SHA256.</b></p> <p>The default value is <b>Default</b>. When <b>ssl_protocols</b> is set to <b>TLS 1.2 TLS 1.1 TLS 1.0</b>, this parameter can only be set to <b>Extended</b>.</p>

## Request

- Request parameters

None

- Example request

```
{
  "name": "listener1",
  "description": "",
  "loadbalancer_id": "0b07acf06d243925bc24a0ac7445267a",
  "protocol": "HTTP",
  "port": 88,
  "backend_protocol": "HTTP",
  "backend_port": 80,
  "lb_algorithm": "roundrobin",
  "session_sticky": true,
  "sticky_session_type": "insert",
  "cookie_timeout": 100,
  "tcp_draining": true,
  "tcp_draining_timeout": 5
}
```

## Response

- Response parameters

**Table 6-16** Parameter description

Parameter	Type	Description
update_time	String	Specifies the time when the listener was updated.
backend_port	Integer	Specifies the port used by backend ECSs.
id	String	Specifies the listener ID.
backend_protocol	String	Specifies the protocol used by backend ECSs.

Parameter	Type	Description
sticky_session_type	String	Specifies where the cookie is from. The only value is <b>insert</b> , indicating that the cookie is inserted by the load balancer. This parameter is valid when <b>protocol</b> is set to <b>HTTP</b> and <b>session_sticky</b> to <b>true</b> .
description	String	Provides supplementary information about the listener.
loadbalancer_id	String	Specifies the load balancer ID.
create_time	String	Specifies the time when the listener was created.
status	String	Specifies the listener status. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .
protocol	String	Specifies the protocol used for load balancing at Layer 4 or Layer 7.
port	Integer	Specifies the port used by the listener.
cookie_timeout	Integer	<ul style="list-style-type: none"><li>Specifies the cookie timeout duration in the unit of minute. This parameter is valid when <b>session_sticky</b> is set to <b>true</b> and <b>sticky_session_type</b> to <b>insert</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>
admin_state_up	Boolean	<ul style="list-style-type: none"><li>Specifies the administrative status of the load balancer.</li><li>Two options are available: <b>false</b>: The load balancer is disabled. <b>true</b>: The load balancer is running properly.</li></ul>
session_sticky	Boolean	Specifies whether to enable the sticky session feature. The feature is enabled when the value is <b>true</b> .
lb_algorithm	String	Specifies the load balancing algorithm.



Parameter	Type	Description
name	String	Specifies the listener name.
tcp_draining	Boolean	<ul style="list-style-type: none"><li>Specifies whether to maintain TCP connections to a backend ECS that has been removed. This parameter is valid when <b>protocol</b> is set to <b>TCP</b>.</li><li>The value can be <b>true</b> or <b>false</b>.</li></ul>
tcp_draining_timeout	Integer	<ul style="list-style-type: none"><li>Specifies the timeout duration for maintaining TCP connections to a backend ECS that has been removed in the unit of minute. This parameter is valid when <b>protocol</b> is set to <b>TCP</b> and <b>tcp_draining</b> to <b>true</b>.</li><li>The value ranges from <b>0</b> to <b>60</b>.</li></ul>
ssl_protocols	String	<ul style="list-style-type: none"><li>Specifies the supported SSL/TLS protocol version.</li><li>This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b>.</li></ul>
ssl_ciphers	String	<ul style="list-style-type: none"><li>Specifies the cipher suite of an encryption protocol.</li><li>This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b>.</li></ul>
certificate_id	String	<ul style="list-style-type: none"><li>Specifies the default certificate ID.</li><li>This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b>.</li></ul>

- Example response

```
{
  "update_time": "2015-09-15 07:41:17",
  "backend_port": 80,
  "tcp_draining": true,
  "id": "248425d7b97dc26920eb23720115e068",
  "backend_protocol": "HTTP",
  "sticky_session_type": "insert",
  "description": "",
  "loadbalancer_id": "0b07acf06d243925bc24a0ac7445267a",
  "create_time": "2015-09-15 07:41:17",
  "status": "ACTIVE",
  "protocol": "TCP",
```

```
"port": 88,  
"cookie_timeout": 100,  
"admin_state_up": true,  
"session_sticky": true,  
"lb_algorithm": "roundrobin",  
"name": "listener1",  
"tcp_draining": true,  
"tcp_draining_timeout": 5  
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.2.2 Deleting a Listener

### Function

This API is used to delete a listener.

### URI

DELETE /v1.0/{project\_id}/elbaas/listeners/{listener\_id}

**Table 6-17** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters  
None
- Example response  
None

## Status Code

- Normal  
204
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.2.3 Modifying a Listener

### Function

This API is used to modify the listener information, including the listener name, description, and status.

### URI

PUT /v1.0/{project\_id}/elbaas/listeners/{listener\_id}

**Table 6-18** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.
name	No	String	<ul style="list-style-type: none"><li>Specifies the listener name.</li><li>The value can contain 1 to 64 characters that consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
description	No	String	<ul style="list-style-type: none"><li>Provides supplementary information about the listener.</li><li>The value contains 0 to 128 characters and cannot contain angle brackets (&lt; and &gt;).</li></ul>
port	No	Integer	<ul style="list-style-type: none"><li>Specifies the port used by the listener.</li><li>The port number ranges from 1 to 65535.</li></ul>
backend_port	No	Integer	<ul style="list-style-type: none"><li>Specifies the port used by backend ECSs.</li><li>The port number ranges from 1 to 65535.</li></ul>
lb_algorithm	No	String	<ul style="list-style-type: none"><li>Specifies the load balancing algorithm.</li><li>The value can be <b>roundrobin</b>, <b>leastconn</b>, or <b>source</b>.</li></ul>
tcp_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the TCP session timeout duration. This parameter is valid when <b>protocol</b> is set to <b>TCP</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>

Parameter	Mandatory	Type	Description
tcp_draining	No	Boolean	<ul style="list-style-type: none"><li>Specifies whether to maintain TCP connections to a backend ECS that has been removed. This parameter is valid when <b>protocol</b> is set to <b>TCP</b>.</li><li>The value can be <b>true</b> or <b>false</b>.</li></ul>
tcp_draining_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the timeout duration for maintaining TCP connections to a backend ECS that has been removed in the unit of minute. This parameter is valid when <b>protocol</b> is set to <b>TCP</b> and <b>tcp_draining</b> to <b>true</b>.</li><li>The value ranges from <b>0</b> to <b>60</b>.</li></ul>
udp_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the UDP session timeout duration. This parameter is valid when <b>protocol</b> is set to <b>UDP</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>
ssl_protocols	No	String	<ul style="list-style-type: none"><li>Specifies the supported SSL/TLS protocol version. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b>.</li><li>The value can be <b>TLS 1.2</b> or <b>TLS 1.2 TLS 1.1 TLS 1.0</b>, and the default value is <b>TLS 1.2</b>.</li></ul>

Parameter	Mandatory	Type	Description
ssl_ciphers	No	String	<ul style="list-style-type: none"> <li>Specifies the cipher suites supported by a specific SSL/TLS protocol version. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b>.</li> <li>The value is <b>Default</b>, <b>Extended</b>, or <b>Strict</b>. The value of <b>Default</b> is <b>ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-RSA-AES256-SHA384:ECDHE-RSA-AES128-SHA256</b>. The value of <b>Extended</b> is <b>ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-</b></li> </ul>

Parameter	Mandatory	Type	Description
			<p>SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA.</p> <p>The value of <b>Strict</b> is ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256.</p> <p>The default value is <b>Default</b>. When <b>ssl_protocols</b> is set to <b>TLS 1.2 TLS 1.1 TLS 1.0</b>, this parameter can only be set to <b>Extended</b>.</p>
certificate_id	No	String	<ul style="list-style-type: none"> <li>Specifies the default certificate ID. This parameter is mandatory when <b>protocol</b> is set to <b>HTTPS</b>.</li> <li>The ID can be obtained from the certificate list.</li> </ul>

## Request

- Request parameters  
None

- Example request

```
{
  "name": "lis",
  "description": "",
  "port": 9090,
  "backend_port": 9090,
  "lb_algorithm": "roundrobin"
}
```

## Response

- Response parameters

**Table 6-19** Parameter description

Parameter	Type	Description
update_time	String	Specifies the time when the listener was updated.
backend_port	Integer	Specifies the port used by backend ECSs.
id	String	Specifies the listener ID in UUID format.
backend_protocol	String	Specifies the protocol used by backend ECSs.
sticky_session_type	String	Specifies where the cookie is from. The only value is <b>insert</b> , indicating that the cookie is inserted by the load balancer. <ul style="list-style-type: none"><li>• This parameter is valid when <b>protocol</b> is set to <b>HTTP</b> and <b>session_sticky</b> to <b>true</b>.</li><li>• This parameter is invalid when <b>protocol</b> is set to <b>TCP</b> or <b>UDP</b>, which means that the parameter is unavailable or its value is set to <b>null</b>.</li></ul>
description	String	Provides supplementary information about the listener.
loadbalancer_id	String	Specifies the load balancer ID.
create_time	String	Specifies the time when the listener was created.
status	String	Specifies the listener status. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .
protocol	String	Specifies the protocol used for load balancing at Layer 4 or Layer 7.
port	Integer	Specifies the port used by the listener.
cookie_timeout	Integer	<ul style="list-style-type: none"><li>• Specifies the cookie timeout duration. This parameter is valid when <b>session_sticky</b> is set to <b>true</b> and <b>sticky_session_type</b> to <b>insert</b>.</li><li>• The value ranges from <b>1</b> to <b>1440</b>.</li></ul>



Parameter	Type	Description
admin_state_up	Boolean	<ul style="list-style-type: none"><li>Specifies the administrative status of the load balancer.</li><li>Two options are available: <b>false</b>: The load balancer is disabled. <b>true</b>: The load balancer is running properly.</li></ul>
healthcheck_id	String	Specifies the health check ID.
session_sticky	Boolean	Specifies whether to enable the sticky session feature. The feature is enabled when the value is <b>true</b> . This parameter is valid only when <b>protocol</b> is set to <b>HTTP</b> .
lb_algorithm	String	Specifies the load balancing algorithm.
name	String	Specifies the listener name.
tcp_draining	Boolean	<ul style="list-style-type: none"><li>Specifies whether to maintain TCP connections to a backend ECS that has been removed. This parameter is valid when <b>protocol</b> is set to <b>TCP</b>.</li><li>The value can be <b>true</b> or <b>false</b>.</li></ul>
tcp_draining_timeout	Integer	<ul style="list-style-type: none"><li>Specifies the timeout duration for maintaining TCP connections to a backend ECS that has been removed. The unit is minute. This parameter is valid when <b>protocol</b> is set to <b>TCP</b> and <b>tcp_draining</b> to <b>true</b>.</li><li>The value ranges from <b>0</b> to <b>60</b>.</li></ul>
certificate_id	String	Specifies the ID of the SSL certificate for security authentication.  This parameter is mandatory when <b>protocol</b> is set to <b>HTTPS</b> . Otherwise, the parameter value is <b>null</b> .

- Example response

```
{
  "update_time": "2016-12-01 07:12:59",
  "backend_port": 9090,
  "id": "a824584fb3ba4d39ba0cf372c7cbbb67",
  "backend_protocol": "TCP",
  "sticky_session_type": null,
  "certificate_id": null,
  "description": "",
  "loadbalancer_id": "f54c65b1b5dd4a4f95b71b44796ac013",
  "create_time": "2016-12-01 07:12:43",
  "admin_state_up": false,
  "status": "ACTIVE",
  "protocol": "TCP",
  "cookie_timeout": 100,
  "port": 9092,
  "tcp_draining": true,
  "tcp_timeout": 1,
  "lb_algorithm": "roundrobin",
  "healthcheck_id": null,
  "session_sticky": true,
  "tcp_draining_timeout": 5,
  "name": "lis"
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.2.4 Querying Details of a Listener

### Function

This API is used to query details about a listener.

### URI

GET /v1.0/{project\_id}/elbaas/listeners/{listener\_id}

**Table 6-20** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters

**Table 6-21** Parameter description

Parameter	Type	Description
update_time	String	Specifies the time when the listener was updated.
backend_port	Integer	Specifies the port used by backend ECSs.
id	String	Specifies the listener ID.
backend_protocol	String	Specifies the protocol used by backend ECSs.
sticky_session_type	String	Specifies where the cookie is from. The only value is <b>insert</b> , indicating that the cookie is inserted by the load balancer. <ul style="list-style-type: none"><li>• This parameter is valid when <b>protocol</b> is set to <b>HTTP</b> and <b>session_sticky</b> to <b>true</b>. The default value is <b>insert</b>.</li><li>• This parameter is invalid when <b>protocol</b> is set to <b>TCP</b>, which means that the parameter is unavailable or its value is set to <b>null</b>.</li></ul>
description	String	Provides supplementary information about the listener.

Parameter	Type	Description
loadbalancer_id	String	Specifies the load balancer ID.
create_time	String	Specifies the time when the listener was created.
status	String	Specifies the listener status. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .
protocol	String	Specifies the protocol used for load balancing at Layer 4 or Layer 7.
port	Integer	Specifies the port used by the listener.
cookie_timeout	Integer	<ul style="list-style-type: none"><li>Specifies the cookie timeout duration. This parameter is valid when <b>session_sticky</b> is set to <b>true</b> and <b>sticky_session_type</b> to <b>insert</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>
admin_state_up	Boolean	<ul style="list-style-type: none"><li>Specifies the administrative status of the load balancer.</li><li>Two options are available: <b>false</b>: The load balancer is disabled. <b>true</b>: The load balancer is running properly.</li></ul>
member_number	Integer	Specifies the quantity of backend ECSs.
healthcheck_id	String	Specifies the health check ID.
session_sticky	Boolean	Specifies whether to enable the sticky session feature. The feature is enabled when the value is <b>true</b> .
lb_algorithm	String	Specifies the load balancing algorithm.
name	String	Specifies the listener name.

Parameter	Type	Description
certificate_id	String	Specifies the ID of the SSL certificate for security authentication.  This parameter is mandatory when <b>protocol</b> is set to <b>HTTPS</b> . Otherwise, the parameter value is <b>null</b> .
tcp_timeout	Integer	Specifies the TCP session timeout duration.
udp_timeout	Integer	Specifies the UDP session timeout duration.
ssl_protocols	String	Specifies the supported SSL/TLS protocol version. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b> .  <b>NOTE</b> For HTTPS listeners in versions earlier than 1.2.8, the parameter value is <b>TLS 1.2</b> .
ssl_ciphers	String	Specifies the cipher suite of an encryption protocol. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b> .

- Example response

```
{
  "update_time": "2015-09-15 07:41:17",
  "backend_port": 80,
  "id": "248425d7b97dc26920eb23720115e068",
  "backend_protocol": "TCP",
  "sticky_session_type": "insert",
  "description": "",
  "loadbalancer_id": "0b07acf06d243925bc24a0ac7445267a",
  "create_time": "2015-09-15 07:41:17",
  "status": "ACTIVE",
  "protocol": "TCP",
  "port": 88,
  "cookie_timeout": 100,
  "admin_state_up": true,
  "member_number": 0,
  "healthcheck_id": null,
  "session_sticky": true,
  "lb_algorithm": "roundrobin",
  "name": "listener1",
  "tcp_draining": true,
  "tcp_draining_timeout": 5
}
{
  "update_time": "2016-12-01 07:12:59",
  "backend_port": 9090,
  "id": "a824584fb3ba4d39ba0cf372c7cbbb67",
  "backend_protocol": "TCP",
  "sticky_session_type": null,
  "certificate_id": null,
}
```

```
"description": "",
"loadbalancer_id": "f54c65b1b5dd4a4f95b71b44796ac013",
"lb_algorithm": "roundrobin",
"create_time": "2016-12-01 07:12:43",
"admin_state_up": false,
"status": "ACTIVE",
"protocol": "TCP",
"cookie_timeout": 100,
"port": 9092,
"tcp_draining": 1,
"tcp_timeout": 1,
"member_number": 0,
"healthcheck_id": null,
"session_sticky": true,
"tcp_draining_timeout": 5,
"name": "lis"
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.2.5 Querying Listeners

### Function

This API is used to query listeners using search criteria and display them in a list.

### URI

GET /v1.0/{project\_id}/elbaas/listeners?loadbalancer\_id={loadbalancer\_id}

#### NOTE

Enter a question mark (?) and an ampersand (&) at the end of the URI to define multiple search criteria. You can filter the listeners using the parameters in the response except **update\_time**, **create\_time**, **admin\_state\_up**, **session\_sticky**, and **member\_number**.

**Table 6-22** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
loadbalancer_id	No	String	Specifies the load balancer ID.

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters

**Table 6-23** Parameter description

Parameter	Type	Description
update_time	String	Specifies the time when the listener was updated.
backend_port	Integer	Specifies the port used by backend ECSs.
id	String	Specifies the listener ID.
backend_protocol	String	Specifies the protocol used by backend ECSs.
sticky_session_type	String	Specifies where the cookie is from. The only value is <b>insert</b> , indicating that the cookie is inserted by the load balancer. <ul style="list-style-type: none"><li>• This parameter is valid when <b>protocol</b> is set to <b>HTTP</b> and <b>session_sticky</b> to <b>true</b>. The default value is <b>insert</b>.</li><li>• This parameter is invalid when <b>protocol</b> is set to <b>TCP</b>, which means that the parameter is unavailable or its value is set to <b>null</b>.</li></ul>
description	String	Provides supplementary information about the listener.

Parameter	Type	Description
loadbalancer_id	String	Specifies the load balancer ID.
create_time	String	Specifies the time when the listener was created.
status	String	Specifies the listener status. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .
protocol	String	Specifies the protocol used for load balancing at Layer 4 or Layer 7.
lb_algorithm	String	Specifies the load balancing algorithm.
admin_state_up	Boolean	<ul style="list-style-type: none"><li>Specifies the administrative status of the load balancer.</li><li>Two options are available:<ul style="list-style-type: none"><li><b>false</b>: The load balancer is disabled.</li><li><b>true</b>: The load balancer is running properly.</li></ul></li></ul>
cookie_timeout	Integer	<ul style="list-style-type: none"><li>Specifies the cookie timeout duration. This parameter is valid when <b>session_sticky</b> is set to <b>true</b> and <b>sticky_session_type</b> to <b>insert</b>.</li><li>The value ranges from <b>1</b> to <b>1440</b>.</li></ul>
member_number	Integer	Specifies the quantity of backend ECSs.
healthcheck_id	String	Specifies the health check ID.
session_sticky	Boolean	Specifies whether to enable the sticky session feature. The feature is enabled when the value is <b>true</b> .
port	Integer	Specifies the port used by the listener.
name	String	Specifies the listener name.
certificate_id	String	Specifies the ID of the SSL certificate for security authentication. This parameter is mandatory when <b>protocol</b> is set to <b>HTTPS</b> or <b>SSL</b> . Otherwise, the parameter value is <b>null</b> .
tcp_timeout	Integer	Specifies the TCP session timeout duration.



Parameter	Type	Description
udp_timeout	Integer	Specifies the UDP session timeout duration.
ssl_protocols	String	Specifies the supported SSL/TLS protocol version. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b> . <b>NOTE</b> For HTTPS listeners in versions earlier than 1.2.8, the parameter value is <b>TLS 1.2</b> .
ssl_ciphers	String	Specifies the cipher suite of an encryption protocol. This parameter is available only when <b>protocol</b> is set to <b>HTTPS</b> .

- Example response

```
[
  {
    "update_time": "2016-12-01 07:12:59",
    "backend_port": 9090,
    "id": "a824584fb3ba4d39ba0cf372c7cbbb67",
    "backend_protocol": "TCP",
    "sticky_session_type": null,
    "certificate_id": null,
    "description": "",
    "loadbalancer_id": "f54c65b1b5dd4a4f95b71b44796ac013",
    "lb_algorithm": "roundrobin",
    "create_time": "2016-12-01 07:12:43",
    "admin_state_up": false,
    "status": "ACTIVE",
    "protocol": "TCP",
    "cookie_timeout": 100,
    "port": 9092,
    "tcp_draining": true,
    "tcp_timeout": 1,
    "member_number": 0,
    "healthcheck_id": null,
    "session_sticky": true,
    "tcp_draining_timeout": 5,
    "name": "lis"
  },
  {
    "update_time": "2016-12-01 07:11:49",
    "backend_port": 9090,
    "id": "4818300858fc43e0a4d843ce74ee83a4",
    "backend_protocol": "HTTP",
    "sticky_session_type": "insert",
    "certificate_id": null,
    "description": "",
    "loadbalancer_id": "f54c65b1b5dd4a4f95b71b44796ac013",
    "lb_algorithm": "roundrobin",
    "create_time": "2016-12-01 07:11:30",
    "admin_state_up": false,
    "status": "ACTIVE",
    "protocol": "HTTP",
    "cookie_timeout": 100,
    "port": 9091,
    "tcp_draining": true,
```

```
"tcp_timeout": null,  
"member_number": 0,  
"healthcheck_id": null,  
"session_sticky": true,  
"tcp_draining_timeout": 5,  
"name": "lis"  
}  
]
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.3 Health Check

### 6.3.1 Configuring a Health Check

#### Function

This API is used to configure a health check for backend ECSs.

#### URI

POST /v1.0/{project\_id}/elbaas/healthcheck

**Table 6-24** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the ID of the listener with which the health check is associated.

Parameter	Mandatory	Type	Description
healthcheck_protocol	No	String	<ul style="list-style-type: none"><li>Specifies the health check protocol. A listener using UDP is not allowed for a private network load balancer.</li><li>The value can be <b>HTTP</b>, <b>TCP</b>, or <b>UDP</b>.</li></ul>
healthcheck_uri	No	String	<ul style="list-style-type: none"><li>Specifies the health check URI. This parameter is valid when <b>healthcheck_protocol</b> is <b>HTTP</b>.</li><li>The value can contain 1 to 80 characters that must start with a slash (/) and can contain only letters, digits, and special characters such as <code>-.%?#&amp;_ =</code></li></ul>
healthcheck_connect_port	No	Integer	<ul style="list-style-type: none"><li>Specifies the health check port.</li><li>The port number ranges from 1 to 65535.</li></ul>
healthy_threshold	No	Integer	<ul style="list-style-type: none"><li>Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>fail</b> to <b>success</b>.</li><li>The value ranges from <b>1</b> to <b>10</b>.</li></ul>
unhealthy_threshold	No	Integer	<ul style="list-style-type: none"><li>Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>success</b> to <b>fail</b>.</li><li>The value ranges from <b>1</b> to <b>10</b>.</li></ul>
healthcheck_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the maximum time required for waiting for a response from the health check in the unit of second.</li><li>The value ranges from <b>1</b> to <b>50</b>.</li></ul>
healthcheck_interval	No	Integer	<ul style="list-style-type: none"><li>Specifies the maximum time between health checks in the unit of second.</li><li>The value ranges from <b>1</b> to <b>50</b>.</li></ul>

## Request

- Request parameters  
None
- Example request 1: Configuring an HTTP health check

```
{
  "healthcheck_connect_port": 80,
  "healthcheck_interval": 5,
  "healthcheck_protocol": "HTTP",
  "healthcheck_timeout": 10,
  "healthcheck_uri": "/",
  "healthy_threshold": 3,
```

```
"listener_id": "3ce8c4429478a5eb6ef4930de2d75b28",  
"unhealthy_threshold": 3  
}
```

- Example request 2: Configuring a TCP health check

```
{  
  "healthcheck_connect_port": 80,  
  "healthcheck_interval": 5,  
  "healthcheck_protocol": "TCP",  
  "healthcheck_timeout": 10,  
  "healthcheck_uri": "",  
  "healthy_threshold": 3,  
  "listener_id": "3ce8c4429478a5eb6ef4930de2d75b28",  
  "unhealthy_threshold": 3  
}
```

## Response

- Response parameters

**Table 6-25** Parameter description

Parameter	Type	Description
healthcheck_interval	Integer	Specifies the maximum time between health checks in the unit of second.
listener_id	String	Specifies the ID of the listener with which the health check is associated.
id	String	Specifies the health check ID.
healthcheck_protocol	String	Specifies the health check protocol.
unhealthy_threshold	Integer	Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>success</b> to <b>fail</b> .
update_time	String	Specifies the time when the health check was updated.
create_time	String	Specifies the time when the health check was configured.
healthcheck_connect_port	Integer	Specifies the health check port.
healthcheck_timeout	Integer	Specifies the maximum time required for waiting for a response from the health check in the unit of second.
healthcheck_uri	String	Specifies the health check URI. This parameter is valid when <b>healthcheck_protocol</b> is <b>HTTP</b> .
healthy_threshold	Integer	Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>fail</b> to <b>success</b> .

- Example response 1: Configuring an HTTP health check

```
{
  "healthcheck_interval":5,
  "listener_id":"3ce8c4429478a5eb6ef4930de2d75b28",
  "id":"134e5ea962327c6a574b83e6e7f31f35",
  "healthcheck_protocol":"HTTP",
  "unhealthy_threshold":3,
  "update_time":"2015-12-25 03:57:23",
  "create_time":"2015-12-25 03:57:23",
  "healthcheck_connect_port":80,
  "healthcheck_timeout":10,
  "healthcheck_uri":"\\",
  "healthy_threshold":3
}
```

- Example response 2: Configuring a TCP health check

```
{
  "healthcheck_interval":5,
  "listener_id":"3ce8c4429478a5eb6ef4930de2d75b28",
  "id":"134e5ea962327c6a574b83e6e7f31f35",
  "healthcheck_protocol":"TCP",
  "unhealthy_threshold":3,
  "update_time":"2015-12-25 03:57:23",
  "create_time":"2015-12-25 03:57:23",
  "healthcheck_connect_port":80,
  "healthcheck_timeout":10,
  "healthcheck_uri":"","
  "healthy_threshold":3
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.3.2 Deleting a Health Check

### Function

This API is used to delete a health check.

## URI

DELETE /v1.0/{project\_id}/elbaas/healthcheck/{healthcheck\_id}

**Table 6-26** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
healthcheck_id	Yes	String	Specifies the health check ID.

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters  
None
- Example response  
None

## Status Code

- Normal  
204
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.3.3 Modifying a Health Check

### Function

This API is used to modify information about a health check.

### URI

PUT /v1.0/{project\_id}/elbaas/healthcheck/{healthcheck\_id}

**Table 6-27** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
healthcheck_id	Yes	String	Specifies the health check ID.
healthcheck_protocol	No	String	<ul style="list-style-type: none"><li>Specifies the health check protocol.</li><li>The value can be <b>HTTP</b> or <b>TCP</b> (case-insensitive).</li></ul>
healthcheck_uri	No	String	<ul style="list-style-type: none"><li>Specifies the health check URI. This parameter is valid when <b>healthcheck_protocol</b> is <b>HTTP</b>.</li><li>The value can contain 1 to 80 characters that must start with a slash (/) and can contain only letters, digits, and special characters such as <code>-.%?#&amp;_ =</code></li></ul>
healthcheck_connect_port	No	Integer	<ul style="list-style-type: none"><li>Specifies the health check port.</li><li>The port number ranges from 1 to 65535.</li></ul>
healthy_threshold	No	Integer	<ul style="list-style-type: none"><li>Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>fail</b> to <b>success</b>.</li><li>The value ranges from <b>1</b> to <b>10</b>.</li></ul>
unhealthy_threshold	No	Integer	<ul style="list-style-type: none"><li>Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>success</b> to <b>fail</b>.</li><li>The value ranges from <b>1</b> to <b>10</b>.</li></ul>
healthcheck_timeout	No	Integer	<ul style="list-style-type: none"><li>Specifies the maximum time required for waiting for a response from the health check in the unit of second.</li><li>The value ranges from <b>1</b> to <b>50</b>.</li></ul>

Parameter	Mandatory	Type	Description
healthcheck_interval	No	Integer	<ul style="list-style-type: none"><li>Specifies the maximum time between health checks in the unit of second.</li><li>The value ranges from <b>1</b> to <b>50</b>.</li></ul>

## Request

- Request parameters  
None
- Example request

```
{  
  "healthcheck_connect_port": 88,  
  "healthcheck_interval": 5,  
  "healthcheck_protocol": "HTTP",  
  "healthcheck_timeout": 10,  
  "healthcheck_uri": "/",  
  "healthy_threshold": 3,  
  "unhealthy_threshold": 2  
}
```

## Response

- Response parameters

**Table 6-28** Parameter description

Parameter	Type	Description
healthcheck_interval	Integer	Specifies the maximum time between health checks in the unit of second.
listener_id	String	Specifies the ID of the listener with which the health check is associated.
id	String	Specifies the health check ID.
healthcheck_protocol	String	Specifies the health check protocol.
unhealthy_threshold	Integer	Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>success</b> to <b>fail</b> .
update_time	String	Specifies the time when the certificate was updated.
create_time	String	Specifies the time when the health check was created.
healthcheck_connect_port	Integer	Specifies the health check port.



Parameter	Type	Description
healthcheck_timeout	Integer	Specifies the maximum time required for waiting for a response from the health check in the unit of second.
healthcheck_uri	String	Specifies the health check URI. This parameter is valid when <b>healthcheck_protocol</b> is <b>HTTP</b> .
healthy_threshold	Integer	Specifies the threshold at which the health check result is <b>success</b> , that is, the number of consecutive successful health checks when the health check result of a backend ECS changes from <b>fail</b> to <b>success</b> .

- Example response

```
{
  "healthcheck_interval": 5,
  "listener_id": "3ce8c4429478a5eb6ef4930de2d75b28",
  "id": "134e5ea962327c6a574b83e6e7f31f35",
  "healthcheck_protocol": "HTTP",
  "unhealthy_threshold": 2,
  "update_time": "2015-12-25 03:57:23",
  "create_time": "2015-12-25 03:57:23",
  "healthcheck_connect_port": 88,
  "healthcheck_timeout": 10,
  "healthcheck_uri": "/",
  "healthy_threshold": 3
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.3.4 Querying Details of a Health Check

### Function

This API is used to query details about a health check.

### URI

GET /v1.0/{project\_id}/elbaas/healthcheck/{healthcheck\_id}

**Table 6-29** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
healthcheck_id	Yes	String	Specifies the health check ID.

### Request

- Request parameters  
None
- Example request  
None

### Response

- Response parameters

**Table 6-30** Parameter description

Parameter	Type	Description
healthcheck_interval	Integer	Specifies the maximum time between health checks in the unit of second.
listener_id	String	Specifies the ID of the listener with which the health check is associated.
id	String	Specifies the health check ID.
healthcheck_protocol	String	Specifies the health check protocol.
unhealthy_threshold	Integer	Specifies the number of consecutive health checks when the health check result of a backend ECS changes from <b>success</b> to <b>fail</b> .
update_time	String	Specifies the time when the health check was updated.

Parameter	Type	Description
create_time	String	Specifies the time when the health check was configured.
healthcheck_connect_port	Integer	Specifies the health check port.
healthcheck_timeout	Integer	Specifies the maximum time required for waiting for a response from the health check in the unit of second.
healthcheck_uri	String	Specifies the health check URI. This parameter is valid when <b>healthcheck_protocol</b> is <b>HTTP</b> .
healthy_threshold	Integer	Specifies the threshold at which the health check result is <b>success</b> , that is, the number of consecutive successful health checks when the health check result of a backend ECS changes from <b>fail</b> to <b>success</b> .

- Example response

```
{
  "healthcheck_interval": 5,
  "listener_id": "3ce8c4429478a5eb6ef4930de2d75b28",
  "id": "134e5ea962327c6a574b83e6e7f31f35",
  "healthcheck_protocol": "HTTP",
  "unhealthy_threshold": 2,
  "update_time": "2015-12-25 03:57:23",
  "create_time": "2015-12-25 03:57:23",
  "healthcheck_connect_port": 88,
  "healthcheck_timeout": 10,
  "healthcheck_uri": "/",
  "healthy_threshold": 3
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.

Status Code	Message	Description
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.4 Backend ECS

### 6.4.1 Adding Backend ECSs

#### Function

This API is used to add backend ECSs to a listener for monitoring.

To add backend ECSs to a UDP listener, IP addresses can be pinged and UDP services must be enabled.

#### URI

POST /v1.0/{project\_id}/elbaas/listeners/{listener\_id}/members

**Table 6-31** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.
server_id	Yes	String	Specifies the backend ECS ID.
address	Yes	String	Specifies the private IP address of the backend ECS.

#### Request

- Request parameters  
None
- Example request

```
[
  {
    "server_id": "dbecb618-2259-405f-ab17-9b68c4f541b0",
    "address": "172.16.0.31"
  }
]
```

## Response

- Response parameters

**Table 6-32** Parameter description

Parameter	Type	Description
uri	String	Specifies the URI of the job for adding a backend ECS. It is returned by Combined API.
job_id	String	Specifies the unique ID assigned to the job for adding a backend ECS in Combined API.

- Example response

```
{
  "uri": "/v1/55300f3c8f764c06b1a32e2302edc305/jobs/4010b39b4fd3d5ff014fd3ec3ed8002d",
  "job_id": "4010b39b4fd3d5ff014fd3ec3ed8002d"
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.4.2 Removing Backend ECSs

### Function

This API is used to remove backend ECSs from a listener. Multiple backend ECSs can be removed concurrently.

### URI

POST /v1.0/{project\_id}/elbaas/listeners/{listener\_id}/members/action

**Table 6-33** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.
removeMember	Yes	Array	Lists the removed backend ECSs.

**Table 6-34** removeMember parameter description

Parameter	Mandatory	Type	Description
id	Yes	String	Specifies the backend ECS ID.

## Request

- Request parameters

None

- Example request

```
{
  "removeMember": [
    {
      "id": "34695d664b182fa69b98228032b0e239"
    }
  ]
}
```

## Response

- Response parameters

**Table 6-35** Parameter description

Parameter	Type	Description
uri	String	Specifies the URI returned by Combined API after the job for removing a backend ECS is delivered.
job_id	String	Specifies the unique ID assigned to the job for removing a backend ECS in Combined API.

- Example response

```
{
  "uri": "/v1/55300f3c8f764c06b1a32e2302edc305/jobs/4010b39b4fd3d5ff014fd3f160fd006c",
  "job_id": "4010b39b4fd3d5ff014fd3f160fd006c"
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.4.3 Querying Backend ECSs

### Function

This API is used to query backend ECSs added to a listener. If you are the administrator, the backend ECS list will be empty.

### URI

GET /v1.0/{project\_id}/elbaas/listeners/{listener\_id}/members?limit=10&marker=0

#### NOTE

Enter a question mark (?) and an ampersand (&) at the end of the URI to define multiple search criteria. This API allows filtering backend ECSs by each parameter in the response message except **listeners**, **server\_name**, **update\_time**, and **create\_time**.

**Table 6-36** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
listener_id	Yes	String	Specifies the listener ID.

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the resource ID of pagination query. If the parameter is left blank, only resources on the first page are queried.
limit	No	Integer	Specifies the number of records on each page.

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters

**Table 6-37** Parameter description

Parameter	Type	Description
server_address	String	Specifies the private IP address of the backend ECS.
id	String	Specifies the backend ECS ID.
address	String	Specifies the floating IP address assigned to the backend ECS.
status	String	Specifies the status of the backend ECS. The value can be <b>ACTIVE</b> , <b>PENDING</b> , or <b>ERROR</b> .
health_status	String	Specifies the health check result. The value is <b>NORMAL</b> , <b>ABNORMAL</b> , or <b>UNAVAILABLE</b> .
update_time	String	Specifies the time when the backend ECS was updated.
create_time	String	Specifies the time when the backend ECS was added.
server_name	String	Specifies the backend ECS name.
server_id	String	Specifies the backend ECS ID.



Parameter	Type	Description
listeners	Array	Specifies the listener with which the backend ECS is associated.

**Table 6-38** listeners parameter description

Parameter	Type	Description
id	String	Specifies the listener with which the backend ECS is associated.

- Example response

```
[
  {
    "server_address": "172.16.0.16",
    "id": "4ac8777333bc20777147ab160ea61baf",
    "status": "ACTIVE",
    "address": "100.64.27.96",
    "listeners": [
      {
        "id": "65093734fb966b3d70f6af26cc63e125"
      },
      {
        "id": "a659fe780a542e1adf204db767a021a3"
      }
    ],
    "update_time": "2015-12-28 10:35:51",
    "create_time": "2015-12-28 10:35:50",
    "server_name": null,
    "server_id": "97444148-7afb-47cc-b4a3-6e1c94d1ade4",
    "health_status": "NORMAL"
  },
  {
    "server_address": "172.16.0.15",
    "id": "d8a21f107a19d7bd1d05a1f764eb623a",
    "status": "ACTIVE",
    "address": "100.64.27.95",
    "listeners": [
      {
        "id": "65093734fb966b3d70f6af26cc63e125"
      },
      {
        "id": "a659fe780a542e1adf204db767a021a3"
      }
    ],
    "update_time": "2015-12-28 10:35:51",
    "create_time": "2015-12-28 10:35:50",
    "server_name": null,
    "server_id": "05b731db-d457-41dc-a824-862daba91a59",
    "health_status": "ABNORMAL"
  }
]
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.5 Quota

### 6.5.1 Querying Load Balancer or Listener Quotas

#### Function

This API is used to query the load balancer or listener quotas.

#### URI

GET /v1.0/{project\_id}/elbaas/quotas

**Table 6-39** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

#### Request

- Request parameters  
None
- Example request  
None

#### Response

- Response parameters

**Table 6-40** Parameter description

Parameter	Type	Description
quotas	Object	Specifies the resource quotas.

**Table 6-41** quotas parameter description

Parameter	Type	Description
resources	Array	Lists the resource quotas.

**Table 6-42** resources parameter description

Parameter	Type	Description
type	String	Specifies the resource type. The value can be <b>elb</b> or <b>listener</b> .
used	Integer	Specifies the quantity of used resources.
quota	Integer	Specifies the total resource quotas.
max	Integer	Specifies the maximum number of resources.
min	Integer	Specifies the minimum number of resources.

- Example response

```
{
  "quotas": {
    "resources": [
      {
        "type": "elb",
        "used": 2,
        "quota": 5,
        "max": 100,
        "min": 1
      },
      {
        "type": "listener",
        "quota": 5,
        "max": 200,
        "min": 1
      }
    ]
  }
}
```

 **NOTE**

The **used** parameter is unavailable for listeners, for which an empty character string is returned.

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.6 Certificate

### 6.6.1 Creating a Certificate

#### Function

This API is used to create a certificate for an HTTPS listener.

#### URI

POST /v1.0/{project\_id}/elbaas/certificate

**Table 6-43** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
name	No	String	<ul style="list-style-type: none"><li>• Specifies the certificate name.</li><li>• The value can contain 0 to 64 characters that consist of letters, digits, underscores (_), and hyphens (-).</li></ul>

Parameter	Mandatory	Type	Description
description	No	String	<ul style="list-style-type: none"> <li>Provides supplementary information about the certificate.</li> <li>The value contains a maximum of 128 characters and cannot contain angle brackets (&lt; and &gt;).</li> </ul>
domain	No	String	<ul style="list-style-type: none"> <li>Specifies the domain name associated with the server certificate.</li> <li>The value can contain a maximum of 254 characters that consist of letters, digits, hyphens (-), and periods (.), and must start with uppercase letters or digits.</li> </ul>
certificate	Yes	String	<ul style="list-style-type: none"> <li>Specifies the certificate content.</li> <li>The value is in PEM coding format.</li> </ul>
private_key	Yes	String	<ul style="list-style-type: none"> <li>Specifies the private key of the certificate.</li> <li>The value is in PEM coding format.</li> </ul>

## Request

- Request parameters  
None

- Example request

```
{
  "name": "cert-bky",
  "description": "certificate",
  "certificate": "-----BEGIN CERTIFICATE-----
\nMIIDXTCCAkWgAwIBAgIJANoPUy2NktS6MA0GCSqGSIb3DQEBBQUAMEUx CzAJBgNV
\nBAYTAKFVMRMwEQYDVQQIDApTb21lLVN0YXRIMSEwHwYDVQQKBHJbnRlcm5ldCBX
\naWRnaXRzIFB0eSBMdGQwHhcNMTYwNjlyMDMyOTU5WWhcNMTkwNjlyMDMyOTU5WjBF
\nMQswCQYDVQQGEwJBVETMBEGA1UECAwKU29tZS1TdGF0ZTEhMB8GA1UECgwYSW50\nnZXJuZXQgV2lkZ2l0cyBQdHkgTHRkMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIB\n\nCgKCAQEArmUUhzm5sxxVr/ku4+6cKqnKgZvDI+e/6CNCAq8YMZXTpJP64DjDPny9\n\n+8s9MbFabEG3HqjHSHk3b/Ew3FXr8LFa9YuWuAi3W9ii29sZsOwmzlfQhIOlaP1Y
\nNR50DDjbAGTaxzRhV40ZKSOckaUTvl3do5d8ttD1VIF2r0w0DfclrVcss5v3kw88\n\nn9gJ3s3hNkatfQiSt4qLNMehZ8Xofx58DIAOk/f3Vusj3372PsJwKX39cHX/NplHC
\nHKE8qaGcPdQv0daH766eJ065dqO9DuorXPaPT/nxw4PAccb9fByLrTams0ThvSIZ
\nno6V3yvHR4KN7mmvbViEmWRy+9oijEwIDAQABo1AwTjAdBgNVHQ4EFgQUIXhcABza
\nn2SdXPYpp8RkVwKblCNlWwYDVR0jBBgwFoAUIXhcABza2SdXPYpp8RkVwKblCNlW
\nnDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQUFAAOCAQEAHmsFDowbkd45PF4oYdX+
```

```

\ncCoEGNjSLfi0spJ6b1CHQMEy2tPqYZJh8nGuUtB9Zd7+rbwm6NS38eGQVA5vbWZH\nMk
+uq5Un7YFwkM+fdjgCxbe/3PMkk/ZDYPHhpc1W8e/+aZVUBB2EpzBC6tcP/DV\nSsjq+tG
+JZIVADMxvEqVIF94JMpuY7o6U74SnUURAi0h9GkWmeYh/Ucb3PLMe5sF
\noZriRdAKc96KB0eUphfWZNtptOCqV6qtYqZZ/UCotp99xzdKf8jGkm/iBljxb+v
\nONTg8JwfmkCj63YhTKpHf0+N/EK5yX1KUYtlkLaf8OPlsp/1lqAL6CdnYdGEd/s\nAA==\n-----END
CERTIFICATE-----",
  "private_key": "-----BEGIN RSA PRIVATE KEY-----\nMIIEpAIBAAKCAQEAUUhzm5sxxVr/
ku4+6cKqnKgZvDI+e/6CNCAq8YMZXTPjP6\n4DjDPny9+8s9MbFabEG3HqjHSHK3b/
Ew3FXr8LFa9YuWuAi3W9ii29sZsOwmzlfQ
\nhIOlaP1YNR50DDjbAGTaxzRhV40ZKSOCkaUTvL3do5d8tD1VIF2r0w0DfclrVcs
\nS5v3kw889gJ3s3hNkatfQiSt4qLNMeH8Xofx58DIAOK/f3Vusj3372PsJwKX39c\nHX/
NpIHCHKE8qGcPdqvdaH766eJ065dqO9DuoRXPapT/nxw4PAccb9fByLrTam
\ns0ThvSlZ06V3yvHR4KN7mmvbViEmWRy+9oijEwIDAQABAoIBACV47rpHuxEza24O
\nnebbfF9OQics8xA26dN1j/+HpAkzinB4o5V
+XOWWWZDQwbYu58hYE4NYjqf6AxHk3\nOCqAA9yKH2NXhSEyLkP7/rKDF7geZg/YtwNiR/
NXTJbNXl4p8VtaVvAq3yey188x
\nJCMrd1yWSsOWD2Qw7ialBpqQlzdEovPE4CG6GmaIRSuqYuoCfbVTFa6YST7jmOTv\nEpG
+x6yJzJ4o0vfkBkfvPmQizjL+3nAW9g+kgXJmA1xTujiky7bzm2sLK2Slrx
\n5rY73mXMElseSlhkYzWwyRmC6M+rWALXqOhVDglGbaBV4IOzuyH/CU0wy3ZMlpv
\nMOWMNoECgYEA1LHsepCmwjIDF3yf/OztCr/DYqM4HjAY6FTmH+xz1Zjd5R1XOq60\nYFRkhs/e2D6M/
gSX6hMqS9sCkg25yRjK3CsPeoS9v5MoiZQA8XlQNNovcpWUI2DCM\nnaZRIsdovFglqMHYh/
Y4CYouee7Nz7folCzO9svrYrbOIVmMwDVJ8vzMCgYEA0ebg
\nm0lCuOunyxasBqOv4Q4sk7lx0702dirW0tsUjyU+XuYH1P/0m++t4/
KUU2cNwsg3\njniNzQR9QkvF8yTB5TB4Ye/9dKlu+BEOskvCpuErxc6iVJ+TZORQDDPNcq56qez5b
\nnv9EDdgzpjKjO+hS1j3kYOuG11hrP4Pox4PijqECgYEAz6RTZORKqFoWsZss5VK3\nnp0LGkEkfw/
jYmBgqAQhpnSD7n20hd1yPI2vAKAxPVXTbWDFLzWygYiWRQNY9fxb
\n9F7lYyqtY5VagdVHhYUZOvtoFoeZFA6ZeAph9eIGctM3Lq3PD2i/mmnscQibTUu
\nHSiKDWzuk8UtWljEpHze5BkCgYEAifD9eG+bzqTnn1qU2pll2nQTLXj097v84Tu
\nniqF4zAT5DYMtFeGBB1qLjxVh7342CH2Cl4ZhxMJ+L68sAcQH8rDcnGui1DBPlv
\nDl3kW3280bjfW1lUvPRh8NfZ9dsO1HF1n75nveVwg/OWyR7zmWIRPPRrqaEua45H\nnox5z/
CECgYBqwlEBjue8oOkVvu/lKi6fo6jr+0u25K9dp9azHYwE0KNHX0MwRALw
\nWbPgcjge23sfhbeqVvHo0JYBdRsk/OBUW73/9Sb5E+6auDoubCjC0cAlvs23MPju
\nMsMvKak4mQk119foRXBydB/DDkK26iei/l0xoygrw50v2HErsQ7JcHw==\n-----END RSA PRIVATE
KEY-----"
}

```

## Response

- Response parameters

**Table 6-44** Response parameters

Parameter	Type	Description
tenant_id	String	Specifies the project ID.
id	String	Specifies the certificate ID.
name	String	Specifies the certificate name.
description	String	Provides supplementary information about the certificate.
domain	String	Specifies the domain name associated with the server certificate.
certificate	String	Specifies the certificate content.
private_key	String	Specifies the private key of the certificate.
create_time	String	Specifies the time when the certificate was created.



## Status Code

- Normal  
201
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.6.2 Deleting a Certificate

### Function

This API is used to delete a certificate.

### URI

DELETE /v1.0/{project\_id}/elbaas/certificate/{certificate\_id}

**Table 6-45** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
certificate_id	Yes	String	Specifies the certificate ID.

### Request

- Request parameters  
None
- Example request  
None



## Response

- Response parameters  
None
- Example response  
None

## Status Code

- Normal  
204
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.6.3 Modifying a Certificate

### Function

This API is used to modify the name and description of a certificate.

### URI

PUT /v1.0/{project\_id}/elbaas/certificate/{certificate\_id}

**Table 6-46** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
certificate_id	Yes	String	Specifies the certificate ID.

Parameter	Mandatory	Type	Description
name	No	String	<ul style="list-style-type: none"> <li>Specifies the certificate name.</li> <li>The value can contain 0 to 64 characters that consist of letters, digits, underscores (_), and hyphens (-).</li> </ul>
description	No	String	<ul style="list-style-type: none"> <li>Provides supplementary information about the certificate.</li> <li>The value contains a maximum of 128 characters and cannot contain angle brackets (&lt; and &gt;).</li> </ul>

## Request

- Request parameters

None

- Example request

```
{
  "name": "cert-bky",
  "description": "certificate"
}
```

## Response

- Response parameters

**Table 6-47** Parameter description

Parameter	Type	Description
id	String	Specifies the certificate ID.
name	String	Specifies the certificate name.
description	String	Provides supplementary information about the certificate.
domain	String	Specifies the domain name associated with the server certificate.
certificate	String	Specifies the certificate content.
private_key	String	Specifies the private key of the certificate.
create_time	String	Specifies the time when the certificate was created.
update_time	String	Specifies the time when the certificate was updated.

- Example response

```
{
  "name": "cert-bky",
```

```

"description": "certificate",
"domain": null,
"certificate": "-----BEGIN CERTIFICATE-----
\nMIIDXTCCAkWgAwIBAgIJANoPUy2NktS6MA0GCSqGSIb3DQEBBQUAMEUxGzAJBgNV
\nBAYTAKFVMRMwEQYDVQIDApTb21lLVN0YXRIMSEwHwYDVQKDBHJbnRlcm5ldCBX
\naWRnaXRzIFB0eSBMdGQwHhcNMTYwNjlyMDMyOTU5WhcNMTkwNjlyMDMyOTU5WjBF
\nMQswCQYDVQQGEwJBTETMBEGA1UECAwKU29tZS1TdGF0ZTEhMB8GA1UECgwYSW50\n\ngV2lkZ2l0cyBQdHkgTHRkMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIB\n\ngk4+6cKqnKgZvDl+e/6CNCAq8YMZXTPjP64DjDPny9\n+8s9MbFabEG3HqjH5KKh3b/
Ew3FXr8LFa9YuWuAi3W9ii29sZsOwmzlfQhIOlaP1Y
\nNR50DDjbAGTaxzRhV40ZKSOcKaUTvl3do5d8ttD1VIF2r0w0DfclrVcsS5v3kw88\n\n9gJ3s3hNkatfQiSt4qL
NMehZ8Xofx58DIAOK/f3Vusj3372PsJwKX39cHX/NpIHC
\nHKE8qaGcPdqv0daH766eJ065dqO9DuorXPaPT/nxw4PAccb9fByLrTams0ThvSlZ
\no6V3yvHR4KN7mmvbViEmWRY+9oijEwIDAQABo1AwTjAdBgNVHQ4EFgQUiXhcABza
\n2SdXPYpp8RkVwKblCNlWwYDVR0jBBgwFoAUIXhcABza2SdXPYpp8RkVwKblCNlW
\nDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0BAQUFAAOCAQEAHmsFDOwbkd45PF4oYdX+
\nncCoEGNjsLfi0spj6b1CHQMEy2tPqYzJh8nGuUtB9Zd7+rbwm6NS38eGQVA5vbWZH\n\nMk
+uq5un7YFwkM+fdjgCxbe/3PMkk/ZDYPHhpc1W8e/+aZVUBB2EpzBC6tcP/DV\n\nSsj+tg
+ZIVADMxvEqVIF94JmPuy7o6U74SnUUrAi0h9GkWmeYh/Ucb3PLMe5sF
\noZriRdAKc96KB0eUphfWZntptOCqV6qtYqZZ/UCotp99xzdKf8jGkm/iBljxb+v
\nONTg8JwfmYkCj63YhTKpHf0+N/EK5yX1KUYtlkLaf8OPlsp/1lqAL6CndyGEdE/s\n\nAA==\n-----END
CERTIFICATE-----",
"private_key": "-----BEGIN RSA PRIVATE KEY-----\nMIIEpAIBAAKCAQEA\n\nArmUUhzm5sxxVr/
ku4+6cKqnKgZvDl+e/6CNCAq8YMZXTPjP6\n\n4DjDPny9+8s9MbFabEG3HqjH5KKh3b/
Ew3FXr8LFa9YuWuAi3W9ii29sZsOwmzlfQ
\nhIOlaP1YNR50DDjbAGTaxzRhV40ZKSOcKaUTvl3do5d8ttD1VIF2r0w0DfclrVcs
\nS5v3kw889gJ3s3hNkatfQiSt4qLNMehZ8Xofx58DIAOK/f3Vusj3372PsJwKX39c\n\nnHX/
NpIHCHKE8qaGcPdqv0daH766eJ065dqO9DuorXPaPT/nxw4PAccb9fByLrTam
\ns0ThvSlZ06V3yvHR4KN7mmvbViEmWRY+9oijEwIDAQABAoIBACV47rpHuxEza24O
\nnebbbF9OQIcs8xA26dN1j/+HpAkzinB4o5V
+XOWWZDQwbYu58hYE4NYjqf6AxHk3\n\nnOCqAA9yKH2NXhSEyLkP7/rKDF7geZg/YtwNiR/
NXTJbNXl4p8VTaVvAq3yey188x
\nJCMrd1yWssOWD2Qw7ialBpqQzldEovPE4CG6GmailRSuqYuoCfbVTFa6YST7jmOT\n\nv\nEpG
+x6yJZj4o0vfkBkfvPmQizjL+3nAW9g+kgXJmA1xTujiky7bzm2sLK2SLrx
\n5rY73mXMElseSlhkYzWwyRmC6M+rWALXqOhVDgIgbaBV4IOzuyH/CUt0wy3ZMlPv
\nMOWMNoECgYEA1LHsepCmwjLDF3yf/OztCr/DYqM4HjAY6FTmH+xz1Zjd5R1XOq60\n\n\nYFRkhs/e2D6M/
gSX6hMqS9sCkg25yRjK3CsPeoS9v5MoizQA8XIQNovcpWUI2DCm\n\nnaZRIsdovFglqMHYh/
Y4CYouee7Nz7foIczO9svrYrbOIVmMwDVJ8vzMCgYEA0ebg
\nm0lCuOnyxaSBqOv4Q4sk7lx0702dirW0tsUjyU+xuXYH1P/Om+t4/
KUU2cNwsg3\n\nnjiNzQR9QKvF8yTB5TB4Ye/9dKlu+BEOskvCpuErxc6iVJ+TZOrQDDPNcq56qez5b
\nnv9EDdgzpjko+hS1j3kY0uG11hrP4Pox4PijqECgYEAz6RTZORKqFoWsZss5VK3\n\n\nnp0LGkEkfw/
jYmBgqAQhpnSD7n20hd1yPI2vAKAxPVXtbWDFLzWygYiWRQNY9fxb
\n9F7IYqtY5VagdVHhnYUZOvtoFoeZFA6ZeAph9elGctM3Lq3PD2i/mmnscQibTUn
\nHSiKDWzuk8UtWljEpHze5BkCgYEAifD9eG+bzqTnn1qU2p1l2nQTLXj0r97v84Tu
\n\n\nniqF4zAT5DYMtFeGBB11qLjxVh7342CH2Cl4ZhxMJ+L68sAcQH8rDcnGui1DBPllv
\n\n\nDL3kW3280bJfW1lUvPRh8NfZ9dsO1HF1n75nveVwg/OWyR7zmWIRPPRqAeua45H\n\n\nnox5z/
CECgYBqwlEBjue8oOkVvu/lki6fo6jr+0u25K9dp9azHYwE0KNHX0MwRALw
\n\n\nWbPgcjge23sfhbeqVvHo0JYBdRsk/OBuW73/9Sb5E+6auDoubCjC0Alvs23MPju
\n\n\nsMvKak4mQk119foRXBydB/DDkK26iei/l0xoygrw50v2HERsQ7JcHw==\n-----END RSA PRIVATE
KEY-----",
"id": "5b8f908b5495452aa13beede0afc5d99",
"create_time": "2016-06-27 08:14:42",
"update_time": "2016-06-27 08:14:42"
}

```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.6.4 Querying Certificates

### Function

This API is used to query all the certificates.

### URI

GET /v1.0/{project\_id}/elbaas/certificate

**Table 6-48** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

### Request

- Request parameters  
None
- Example request  
None

### Response

- Response parameters

**Table 6-49** Response parameters

Parameter	Type	Description
certificates	Array	Lists the certificates.
instance_num	String	Specifies the number of certificates.

**Table 6-50** certificates parameter description

Parameter	Type	Description
id	String	Specifies the certificate ID.
name	String	Specifies the certificate name.
description	String	Provides supplementary information about the certificate.
domain	String	Specifies the domain name associated with the server certificate.
certificate	String	Specifies the certificate content.
private_key	String	Specifies the private key of the certificate.
create_time	String	Specifies the time when the certificate was created.
update_time	String	Specifies the time when the certificate was updated.

- Example response

```
{
  "certificates": [
    {
      "name": "cert-bky",
      "description": "certificate",
      "domain": null,
      "certificate": "-----BEGIN CERTIFICATE-----
\nMIIDXTCCAkWgAwIBAgIJANoPUy2NktS6MA0GCSqGSIb3DQEBBQUAMEUxGzAJBgNV
\nBAYTAKFVMMRMwEQYDVQQIDApTb211LVN0YXRIMSEwHwYDVQQKBHJbnRlcm5ldCBX
\naWRnaXRzIFB0eSBMdGQwHhcNMTYwNjlyMDMyOTU5WhcNMTkwNjlyMDMyOTU5WjBF
\nMQswCQYDVQQGEwJBVTETMBEGA1UECAwKU29tZS1TdGF0ZTEhMB8GA1UECgwYSW50
\nZXJuZXQgV2lkZ2l0cyBQdHkgTHRkMIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIB
\nCgKCAQEArmUUhzm5sxxVr/ku4+6cKqnKgZvDl+e/6CNCAq8YMZXTpJP64DjDPny9\nn+8s9MbFabEG3HqjHskh3b/Ew3FXr8LFa9YuWuAi3W9ii29sZsOwmzlfQhIOlaP1Y
\nNR50DDjbAGTaxzRhV40ZKSOckaUTvl3do5d8ttD1VIF2r0w0DfclrVcsS5v3kw88\nn9gJ3s3hNkatfQiSt4qLNMehZ8Xofx58DIAOk/f3Vusj3372PsJwKX39cHX/NpIHC
\nHKE8qaGcPdqv0daH766eJ065dqO9DuorXPaPT/nxw4PAccb9fByLrTams0ThvSLZ
\nno6V3yvHR4KN7mmvbViEmWRy+9oiJEWIDAQABo1AwTjAdBgNVHQ4EFgQUiXhcABza
\n2SdXPypp8RkVwKbICNIwHwYDVR0jBBgwFoAUIXhcABza2SdXPypp8RkVwKbICNIw
\nDAYDVROTBAAUwAwEB/zANBgkqhkiG9w0BAQUFAAOCAQEAHmsFDowbkd45PF4oYdX+
\nncCoEGNjsLfioSpJ6b1CHQMEy2tPqYZJh8nGuUtB9Zd7+rbwm6NS38eGQVA5vbWZH\nnMk
```

```
+uq5un7YFwkM+fdjgCxbe/3PMkk/ZDYPHhpc1W8e/+aZVUBB2EpzBC6tcP/DV\nsSjq+tG
+JZIVADMxvEqVIF94JMpuY7o6U74SnUUrAi0h9GkWmeYh/Ucb3PLMe5sF
\noZrIRdAKc96KB0eUphfWZNtptOCqV6qtYqZZ/Ucotp99xzdKf8jGkm/iBljxb+v
\nONTg8JwfmYkCj63YhTKpHf0+N/EK5yX1KUYtlkLaf8OPlsp/1lqAL6CdnydGEd/s\nAA==\n-----END
CERTIFICATE-----",
    "private_key": "-----BEGIN RSA PRIVATE KEY-----\nMIIEpAIBAAKCAQEAUUhzm5sxxVr/
ku4+6cKqnKgZvDl+e/6CNCAq8YMZXTPjP6\n4DjDPny9+8s9MbFabEG3HqjHskh3b/
Ew3FXr8Lfa9YUwui3W9ii29sZsOwmzlfQ
\nhIOIaP1YNR50DDJbAGTaxzRhV40ZKSOckaUTvl3do5d8ttD1VIF2r0w0DfclrVcs
\nS5v3kw889gJ3s3hNkatfQjSt4qLNmehZ8Xofx58DIAOk/f3Vusj3372PsJwKX39c\nHX/
NpIHCHKE8qaGCpDqv0daH766eJ065dqO9DuorXPAPt/nxw4PAccb9fByLrTam
\ns0ThvSlZ06V3yvHR4KN7mmvbViEmWRy+9oijEwIDAQABAoIBACV47rpHuxEza24O
\nnevbbFI9OQIcs8xA26dN1j/+HpAkzinB4o5V
+XOWWZDQwbYu58hYE4NYjqf6AxHk3\nOCqAA9yKH2NXhSEyLkP7/rKDF7geZg/YtwNiR/
NXTJbNXl4p8VtaVvAq3yey188x
\nJCMrd1yWSsOWD2Qw7ialBpqQlzdEovPE4CG6GmailRSuqYuoCfbVTFa6YST7jmOTv\nEpG
+x6yJZj4o0vfkBkfvPmQizjL+3nAW9g+kgXJmA1xTujiky7bzm2sLK2Slrx
\n5rY73mXMElseSlkYzWwyRmC6M+rWALXqOhVDgIGbaBV4IOzuyH/CUt0wy3ZMIpv
\nMOWMNoECgYEA1LHsepCmwjldF3yf/OztCr/DYqM4HjAY6FTmH+xz1Zjd5R1XOq60\nYFRkhs/e2D6M/
gSX6hMqS9sCkg25yRjk3CsPeoS9v5MoiZQA8XIQNovcpWUI2DCm\naZRIsdovFglqMHYh/
Y4CYouee7Nz7foiCzO9svrYrbOIVmMwDVJ8vzMCgYEA0ebg
\nm0lCuOunyxasBqOv4Q4sk7lx0702dlrW0tsUjyU+XuYH1P/Om+t4/
KUU2cNwsg3\njiNzQR9QkvF8yTB5TB4Ye/9dKlu+BEoskvCpuErxc6iVj+TZOrQDDPNcq56qez5b
\nnv9EDdgpjkiO+hS1j3kYUg11hrP4Pox4PijqECgYEAz6RTZORkqFoWsZss5VK3\nnp0LGkEkfw/
jYmBggAQhpnSD7n20hd1yPI2vAKAxPVXtbWDFLzWygYiWRQNY9fxb
\n9F7IYYqtY5VagdVHhnYUZOvtoFoeZFA6ZeAph9elGctM3Lq3PD2i/mmnscQibTUn
\nHSiKDWzuk8UtWljEpHze5BkCgYEAifD9eG+bzqTnn1qU2p1l2nQTLXj0r97v84Tu
\nniqF4zAT5DYMtFeGbb1qLjXvh7342CH2CI4zhxmJ+L68sAcQH8rDcnGui1DBPlv
\nDI3kW3280bjfW1lUvPRh8NfZ9dsO1HF1n75nveVwg/OWyR7zmWIRPPRqAeua45H\nnox5z/
CECgYBqwlEBjue8oOkVvu/Iki6fo6jr+0u25K9dp9azHYwE0KNHX0MwRALw
\nWbPgcjge23sfhbeqVvHo0JYBdRsk/OBuW73/9Sb5E+6auDoubCjC0cAlvs23MPju
\nsMvKak4mQk119foRXBydB/DDkK26iei/l0xygrw50v2HersQ7JcHw==\n-----END RSA PRIVATE
KEY-----",
    "id": "5b8f908b5495452aa13beede0afc5d99",
    "create_time": "2016-06-27 08:14:42",
    "update_time": "2016-06-27 08:14:42"
  }
],
  "instance_num": "1"
}
```

## Status Code

- Normal  
200
- Error

Statu s Code	Message	Description
400	badRequest	Request error.
401	unauthorized	Authentication failed.
403	userDisabled	You do not have the permission to perform the operation.
404	Not Found	The requested page does not exist.
500	authFault	System error.
503	serviceUnavailable	The service is unavailable.

## 6.7 Querying the Job Status

### Function

This API is used to query the job status, such as the execution status of creating or deleting a load balancer.

### URI

GET /v1.0/{project\_id}/jobs/{job\_id}

**Table 6-51** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.
job_id	Yes	String	Specifies the job ID.

### Request

- Request parameters  
None
- Example request  
None

### Response

- Response parameters

**Table 6-52** Parameter description

Parameter	Mandatory	Type	Description
status	Yes	String	Specifies the job status. <ul style="list-style-type: none"><li><b>SUCCESS:</b> The job was successfully executed.</li><li><b>RUNNING:</b> The job is in progress.</li><li><b>FAIL:</b> The job failed.</li><li><b>INIT:</b> The job is being initialized.</li></ul>
entities	Yes	Object	Specifies the response to the job. Each type of job has different contents.

Parameter	Mandatory	Type	Description
job_id	Yes	String	Specifies the job ID.
job_type	Yes	String	Specifies the job type.
begin_time	Yes	String	Specifies the time when the job started.
end_time	Yes	String	Specifies the time when the job ended.
error_code	Yes	String	Specifies the error code returned after the job fails to execute.
fail_reason	Yes	String	Indicates the cause of the execution failure.
message	No	String	Specifies the message returned when an error occurs.
code	No	String	Specifies the error code returned when an error occurs. For details of error code, see <a href="#">Error Codes</a> .
sub_jobs	No	String	Specifies the execution information of a subjob. When no subjob exists, the value of this parameter is left empty. The structure of each subjob is similar to that of the parent job.

- Example response

```
{
  "status": "SUCCESS",
  "entities":
  {
    "elb":
    {
      "id": "ef265755daf84333baf4ddc1d91cbc2f",
      "name": "1",
      "type": "External",
      "status": "ACTIVE",
      "bandwidth": 1,
      "vip_address": "10.154.53.4",
      "tenant_id": "cbc08e2f8c354c7aa7abb88d0a7d11dc",
      "admin_state_up": false,
      "vpc_id": "21838be1-c1ce-4c09-9184-228cdb43038d"
    }
  },
  "job_id": "ff8080825ecc523f015ecd0a98f82f77",
  "job_type": "createELB",
  "begin_time": "2017-09-29T09:49:37.399Z",
  "end_time": "2017-09-29T09:50:03.272Z",
  "error_code": null,
  "fail_reason": null
}
```



## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	Bad Request	The server failed to process the request.
401	Unauthorized	You must enter a username and the password to access the requested page.
403	Forbidden	You are forbidden to access the requested page.
404	Not Found	The server could not find the requested page.
405	Method Not Allowed	You are not allowed to use the method specified in the request.
406	Not Acceptable	Response generated by the server is not acceptable to the client.
407	Proxy Authentication Required	You must use the proxy server for authentication so that the request can be processed.
408	Request Timeout	The request timed out.
409	Conflict	The request could not be processed due to a conflict.
500	Internal Server Error	Failed to complete the request because of an internal service error.
501	Not Implemented	Failed to complete the request because the server does not support the requested function.
502	Bad Gateway	Failed to complete the request because the server has received an invalid response.
503	Service Unavailable	Failed to complete the request because the system is out of service temporarily.
504	Gateway Timeout	A gateway timeout error occurred.

## 6.8 Querying Monitoring Metrics

### Function

This API is used to query all metrics at Layer 4 and Layer 7.

Only users can query these metrics.

### URI

GET /v1.0/{project\_id}/elbaas/monitor

**Table 6-53** Parameter description

Parameter	Mandatory	Type	Description
project_id	Yes	String	Specifies the project ID.

### Request

- Request parameters  
None
- Example request  
None

### Response

- Response parameters

**Table 6-54** Response parameters

Parameter	Type	Description
act_conn	Integer	Specifies the number of active connections.
cps	Integer	Specifies the number of concurrent connections.
create_time	String	Specifies the report time.
in_Bps	Integer	Specifies the inbound rate (bytes/s).
in_pps	Integer	Specifies the number of incoming data packets.
inact_conn	Integer	Specifies the number of inactive connections.

Parameter	Type	Description
loadbalancer_id	String	Specifies the load balancer ID.
loadbalancer_ip	String	Specifies the load balancer IP address.
loadbalancer_name	String	Specifies the load balancer name.
ncps	Integer	Specifies the number of new connections.
out_Bps	Integer	Specifies the outbound rate (bytes/s).
out_pps	Integer	Specifies the number of outgoing data packets.

- Example response

```
[
  {
    "act_conn": 0,
    "cps": 0,
    "create_time": "2016-05-20 16:46:49",
    "in_Bps": 0,
    "in_pps": 0,
    "inact_conn": 0,
    "loadbalancer_id": "34cf6520808d4766ae1455586ab94ba8",
    "loadbalancer_ip": "10.10.1.233",
    "loadbalancer_name": "lb0721",
    "ncps": 0,
    "out_Bps": 0,
    "out_pps": 0
  },
  {
    "act_conn": 0,
    "cps": 0,
    "create_time": "2016-05-20 16:46:49",
    "in_Bps": 0,
    "in_pps": 0,
    "inact_conn": 0,
    "loadbalancer_id": "b44533cce271437bb692365b0c450543",
    "loadbalancer_ip": "10.10.1.253",
    "loadbalancer_name": "lb0721",
    "ncps": 0,
    "out_Bps": 0,
    "out_pps": 0
  }
]
```

## 6.9 API Version

### 6.9.1 Querying All API Versions

#### Function

This API is used to query all API versions of ELB.

## URI

GET /

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters

**Table 6-55** Parameter description

Parameter	Type	Description
versions	Array	Lists all API versions.
id	String	Specifies the version ID, for example, <b>v1</b> .
links	Array	Specifies the API URL.
href	String	Specifies the reference address of the current API version.
rel	String	Specifies the relationship between the current API version and the referenced address.
version	String	Specifies the version. If minor versions are supported, set this parameter to the latest minor version. If minor versions are not supported, leave this parameter blank.
status	String	Specifies the version status. Options are as follows: <ul style="list-style-type: none"><li>• <b>CURRENT</b>: indicates the major version.</li><li>• <b>SUPPORTED</b>: indicates that the version is an old one, but it is still supported.</li><li>• <b>DEPRECATED</b>: indicates a deprecated version which may be deleted later.</li></ul>
updated	String	Specifies the version release time, which must be the UTC time. For example, the release time of v1 is 2014-06-28T12:20:21Z.
min_version	String	Specifies the minor version. If minor versions are supported, set this parameter to the earliest minor version. If minor versions are not supported, leave this parameter blank.

- Example response

```
{
  "versions": [
    {
      "id": "v1.0",
      "links": [
        {
          "href": "https://{elb_endpoint}/v1.0/",
          "rel": "self"
        }
      ],
      "min_version": "",
      "status": "CURRENT",
      "updated": "2018-09-30T00:00:00Z",
      "version": ""
    }
  ]
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	Bad Request	Request error.
401	Unauthorized	The authentication information is not provided or is incorrect.
403	Forbidden	The request was forbidden.
404	Not Found	The requested resource does not exist.
408	Request Timeout	The request timed out.
429	Too Many Requests	The number requests exceeded the upper limit.
500	Internal Server Error	Failed to complete the request because of an internal service error.
503	Service Unavailable	The service is currently unavailable.

## 6.9.2 Querying a Specific API Version

### Function

This API is used to query a specific ELB API version.

## URI

GET /{api\_version}

**Table 6-56** Parameter description

Parameter	Mandatory	Description
api_version	Yes	Specifies the API version.

- **Example**

/v1.0

## Request

- Request parameters  
None
- Example request  
None

## Response

- Response parameters

**Table 6-57** Response parameters

Parameter	Type	Description
version	Object	Specifies the API version.
id	String	Specifies the version ID, for example, <b>v1</b> .
links	Array	Specifies the API URL.
href	String	Specifies the reference address of the current API version.
rel	String	Specifies the relationship between the current API version and the referenced address.
version	String	Specifies the version. If minor versions are supported, set this parameter to the latest minor version. If minor versions are not supported, leave this parameter blank.

Parameter	Type	Description
status	String	Specifies the version status. Options are as follows: <ul style="list-style-type: none"><li>• <b>CURRENT</b>: indicates the major version.</li><li>• <b>SUPPORTED</b>: indicates that the version is an old one, but it is still supported.</li><li>• <b>DEPRECATED</b>: indicates a deprecated version which may be deleted later.</li></ul>
updated	String	Specifies the version release time, which must be the UTC time. For example, the release time of v1 is 2014-06-28T12:20:21Z.
min_version	String	Specifies the minor version. If minor versions are supported, set this parameter to the earliest minor version. If minor versions are not supported, leave this parameter blank.

- Example response

```
{
  "version": {
    "id": "v1.0",
    "links": [
      {
        "href": "https://{elb_endpoint}/v1.0/",
        "rel": "self"
      }
    ],
    "min_version": "",
    "status": "CURRENT",
    "updated": "2018-09-30T00:00:00Z",
    "version": ""
  }
}
```

## Status Code

- Normal  
200
- Error

Status Code	Message	Description
400	Bad Request	Request error.
401	Unauthorized	The authentication information is not provided or is incorrect.
403	Forbidden	The request was forbidden.

<b>Status Code</b>	<b>Message</b>	<b>Description</b>
404	Not Found	The requested resource does not exist.
408	Request Timeout	The request timed out.
429	Too Many Requests	The number requests exceeded the upper limit.
500	Internal Server Error	Failed to complete the request because of an internal service error.
503	Service Unavailable	The service is currently unavailable.



# 7 Enhanced Load Balancer APIs

---

## 7.1 Load Balancer

### 7.1.1 Creating a Load Balancer

#### Function

This API is used to create a private network load balancer. After the load balancer is created, its details, such as load balancer ID, IP address, and subnet ID, are returned.

To create a public network load balancer, you also need to call the API for assigning an EIP and associate this IP address to the port bound to the IP address of the private network load balancer.

#### URI

POST /v2.0/lbaas/loadbalancers

#### Request

**Table 7-1** Parameter description

Parameter	Mandatory	Type	Description
loadbalancer	Yes	Object	Specifies the load balancer. For details, see <a href="#">Table 7-2</a> .

**Table 7-2 loadbalancer** parameter description

Parameter	Mandatory	Type	Description
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
tenant_id	No	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters. The value must be the same as the value of <b>project_id</b> in the token.
vip_subnet_id	Yes	String	Specifies the ID of the IPv4 subnet where the load balancer works. You can obtain the value by calling the API for querying subnets ({VPC endpoint}/v2.0/subnets) using the GET method. The private IP address of the load balancer is in this subnet. Only IPv4 subnets are supported.
provider	No	String	Specifies the provider of the load balancer. The value can only be <b>vlb</b> .
vip_address	No	String	Specifies the private IP address of the load balancer. This IP address must be the one in the subnet specified by <b>vip_subnet_id</b> . If this parameter is not specified, an IP address is automatically assigned to the load balancer from the subnet specified by <b>vip_subnet_id</b> . The value contains a maximum of 64 characters.
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved, and the default value is <b>true</b> .

## Response

**Table 7-3** Response parameters

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see <a href="#">Table 7-4</a> .

**Table 7-4** loadbalancer parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.
tenant_id	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters.
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
vip_subnet_id	String	Specifies the ID of the IPv4 subnet where the load balancer works.
vip_port_id	String	Specifies the ID of the port bound to the private IP address of the load balancer. When you create a load balancer, the system automatically creates a port and associates it with a security group. However, the security group will not take effect.
provider	String	Specifies the provider of the load balancer.
vip_address	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.

Parameter	Type	Description
listeners	Array	Lists the IDs of listeners added to the load balancer. For details, see <a href="#">Table 7-5</a> .
pools	Array	Lists the IDs of backend server groups associated with the load balancer. For details, see <a href="#">Table 7-6</a> .
operating_status	String	This parameter is reserved, and its value can be <b>ONLINE</b> or <b>FROZEN</b> . It specifies the operating status of the load balancer.
provisioning_status	String	This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the load balancer.
admin_state_up	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>
tags	Array	Lists load balancer tags.
created_at	String	Specifies the time when the load balancer was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.
updated_at	String	Specifies the time when the load balancer was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.

**Table 7-5** listeners parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

**Table 7-6** pools parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated backend server group.

## Example Request

- Example request 1: Creating a private network load balancer

POST <https://{{Endpoint}}/v2.0/lbaas/loadbalancers>

```
{
  "loadbalancer": {
    "name": "loadbalancer1",
    "description": "simple lb",
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
    "vip_address": "192.168.0.100",
    "admin_state_up": true
  }
}
```

- Example request 2

(Bind an EIP to the port that has been bound to the load balancer's private IP address. For details about the parameters, see [Table 7-7](#).)

**Table 7-7** Request parameters

Parameter	Mandatory	Type	Description
publicip	Yes	Object	Specifies the EIP. For details, see <a href="#">Table 7-8</a> .
bandwidth	Yes	Object	Specifies the bandwidth. For details, see <a href="#">Table 7-9</a> .
enterprise_project_id	No	String	<ul style="list-style-type: none"> <li>• Specifies the enterprise project ID. The value is <b>0</b> or a UUID that can contain a maximum of 36 characters, including hyphens (-).</li> <li>• When assigning an EIP, you need to bind an enterprise project ID to the EIP.</li> <li>• If this parameter is not specified, the default value is <b>0</b>.</li> </ul> <p><b>NOTE</b></p>

**Table 7-8 publicip** parameter description

Parameter	Mandatory	Type	Description
type	Yes	String	<ul style="list-style-type: none"><li>• Specifies the EIP type.</li><li>• Note:<ul style="list-style-type: none"><li>– The configured value must be supported by the system.</li><li>– <b>publicip_id</b> is an IPv4 port. If <b>publicip_type</b> is not specified, the default value is <b>5_bgp</b>.</li></ul></li></ul>
ip_version	No	Integer	<ul style="list-style-type: none"><li>• Specifies the EIP version.</li><li>• The value can be <b>4</b> and <b>6</b>. <b>4</b> indicates an IPv4 address, and <b>6</b> indicates an IPv6 address.</li><li>• Note:<ul style="list-style-type: none"><li>– The configured value must be supported by the system.</li><li>– If this parameter is left blank or is an empty string, an IPv4 address is assigned by default.</li></ul></li></ul>
ip_address	No	String	<ul style="list-style-type: none"><li>• Specifies the EIP to be assigned. The system automatically assigns an EIP if you do not specify it.</li><li>• The value must be a valid IPv4 address in the available IP address range.</li></ul>

**Table 7-9 bandwidth** parameter description

Parameter	Mandatory	Type	Description
name	Yes	String	<ul style="list-style-type: none"><li>• Specifies the bandwidth name.</li><li>• The value can contain 1 to 64 characters that can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li><li>• This parameter is mandatory when <b>share_type</b> is set to <b>PER</b>. This parameter will be ignored when <b>share_type</b> is set to <b>WHOLE</b> with an ID specified.</li></ul>

Parameter	Mandatory	Type	Description
size	Yes	Integer	<ul style="list-style-type: none"><li>• Specifies the bandwidth (Mbit/s).</li><li>• The value ranges from <b>1</b> to <b>1000</b> by default. (The range may vary depending on the configuration in each region. You can see the bandwidth range of each region on the management console.)</li><li>• This parameter is mandatory when <b>share_type</b> is set to <b>PER</b>. This parameter will be ignored when <b>share_type</b> is set to <b>WHOLE</b> with an ID specified.</li><li>• The minimum unit for bandwidth adjustment varies depending on the bandwidth range. The details are as follows:<ul style="list-style-type: none"><li>– The minimum increment is 1 Mbit/s if the allowed bandwidth ranges from 0 to 300 Mbit/s.</li><li>– The minimum increment is 50 Mbit/s if the allowed bandwidth ranges from 301 Mbit/s to 1000 Mbit/s.</li><li>– The minimum increment is 500 Mbit/s if the allowed bandwidth is greater than 1,000 Mbit/s.</li></ul></li></ul>
id	No	String	<ul style="list-style-type: none"><li>• Specifies the bandwidth ID. You can specify an existing shared bandwidth when assigning an EIP.</li><li>• The value can be the ID of the shared bandwidth whose type is set to <b>WHOLE</b>.</li></ul>



Parameter	Mandatory	Type	Description
share_type	Yes	String	<ul style="list-style-type: none"> <li>Specifies the bandwidth type.</li> <li>The value is <b>PER</b>, indicating that the bandwidth is dedicated.</li> </ul>
charge_mode	No	String	<ul style="list-style-type: none"> <li>If the value is <b>traffic</b>, the bandwidth is billed by traffic.</li> </ul>

– Step 1: Apply for an EIP.

POST https://{VPCEndpoint}/v1/8b7e35ad379141fc9df3e178bd64f55c/publicips

```
{
  "publicip": {
    "type": "5_bgp",
    "ip_version": 4
  },
  "bandwidth": {
    "name": "bandwidth123",
    "size": 10,
    "share_type": "PER"
  }
}
```

– Example response

```
{
  "publicip": {
    "id": "f588ccfa-8750-4d7c-bf5d-2ede24414706",
    "status": "PENDING_CREATE",
    "type": "5_bgp",
    "public_ip_address": "139.9.204.183",
    "tenant_id": "8b7e35ad379141fc9df3e178bd64f55c",
    "ip_version": 4,
    "create_time": "2019-06-29 06:45:32",
    "bandwidth_size": 1
  }
}
```

– Step 2: Bind the EIP. (The value of **public\_id** is the same as that in the **Example response**, and the value of **port\_id** is the same as that of **vip\_port\_id** in **Example response 1**.)

PUT /v1/8b7e35ad379141fc9df3e178bd64f55c/publicips/f588ccfa-8750-4d7c-bf5d-2ede24414706

```
{
  "publicip": {
    "port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7"
  }
}
```

– Example response

```
{
  "publicip": {
    "id": "f588ccfa-8750-4d7c-bf5d-2ede24414706",
    "status": "ACTIVE",
    "type": "5_bgp",
    "port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7",
    "public_ip_address": "139.9.204.183",
    "private_ip_address": "192.168.1.131",
    "tenant_id": "8b7e35ad379141fc9df3e178bd64f55c",
  }
}
```

```
"create_time": "2019-06-29 07:33:18",
"bandwidth_size": 1,
"ip_version": 4
}
}
```

- After the preceding steps are complete, the load balancer has the capability of accessing the public network. You can access the load balancer using 139.9.204.183, the value of parameter **public\_ip\_address**.

## Example Response

- Example response 1

```
{
  "loadbalancer": {
    "description": "simple lb",
    "provisioning_status": "ACTIVE",
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "created_at": "2019-01-19T05:32:56",
    "admin_state_up": true,
    "updated_at": "2019-01-19T05:32:57",
    "id": "ea2843da-4026-49ec-8338-8fa015b067fc",
    "pools": [],
    "listeners": [],
    "vip_port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7",
    "operating_status": "ONLINE",
    "vip_address": "192.168.0.100",
    "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
    "provider": "vlb",
    "tags": [],
    "name": "loadbalancer1"
  }
}
```

- Example response 2

POST https://{Endpoint}/v2.0/lbaas/loadbalancers

```
{
  "loadbalancer": {
    "name": "loadbalancer1",
    "description": "simple lb",
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
    "vip_address": "192.168.0.100",
    "admin_state_up": true
  }
}
```

After the preceding steps are complete, the load balancer has the capability of accessing the public network. You can access the load balancer using 139.9.204.183, the value of parameter **public\_ip\_address**.

## Status Code

For details, see [Status Codes](#).

## 7.1.2 Querying Load Balancers

### Function

This API is used to query load balancers and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

## Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

## URI

GET /v2.0/lbaas/loadbalancers

## Request

**Table 7-10** Parameter description

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the load balancer from which pagination query starts, that is, the ID of the last load balancer on the previous page. This parameter must be used together with <b>limit</b> .
limit	No	Integer	Specifies the number of load balancers on each page.
page_reverse	No	Boolean	Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link. This parameter must be used together with <b>limit</b> .
tenant_id	No	String	Specifies the ID of the project where the load balancer is used.
id	No	String	Specifies the load balancer ID.
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.

Parameter	Mandatory	Type	Description
operating_status	No	String	This parameter is reserved, and its value can be <b>ONLINE</b> or <b>FROZEN</b> . It specifies the operating status of the load balancer.
provisioning_status	No	String	This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the load balancer.
admin_state_up	No	Boolean	This parameter is reserved, and its value can only be <b>true</b> . It specifies the administrative status of the load balancer.
vip_address	No	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.
vip_port_id	No	String	Specifies the ID of the port bound to the private IP address of the load balancer.
vip_subnet_id	No	String	Specifies the ID of the IPv4 subnet where the load balancer works.
member_address	No	String	Specifies the IP address of the backend server associated with the load balancer.
member_device_id	No	String	Specifies the ID of the cloud server used as the backend server associated with the load balancer.
vpc_id	No	String	Specifies the ID of the VPC where the load balancer works.

## Response

**Table 7-11** Response parameters

Parameter	Type	Description
loadbalancers	Array	Lists the load balancers. For details, see <a href="#">Table 7-12</a> .

Parameter	Type	Description
loadbalancers_links	Array	Provides links to the previous or next page during pagination query, respectively. This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 7-15</a> .

**Table 7-12 loadbalancer** parameter description

Parameter	Mandatory	Type	Description
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
tenant_id	No	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters. The value must be the same as the value of <b>project_id</b> in the token.
vip_subnet_id	Yes	String	Specifies the ID of the IPv4 subnet where the load balancer works. You can obtain the value by calling the API for querying subnets ({VPC endpoint}/v2.0/subnets) using the GET method. The private IP address of the load balancer is in this subnet. Only IPv4 subnets are supported. IPv6 subnets are not supported.
provider	No	String	Specifies the provider of the load balancer. The value can only be <b>vlb</b> .

Parameter	Mandatory	Type	Description
vip_address	No	String	Specifies the private IP address of the load balancer.  This IP address must be the one in the subnet specified by <b>vip_subnet_id</b> . If this parameter is not specified, an IP address is automatically assigned to the load balancer from the subnet specified by <b>vip_subnet_id</b> .  The value contains a maximum of 64 characters.
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer.  This parameter is reserved. The default value is <b>true</b> .

**Table 7-13 listeners** parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

**Table 7-14 pools** parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated backend server group.

**Table 7-15 loadbalancers\_links** parameter description

Parameter	Type	Description
href	String	Provides links to the previous or next page during pagination query, respectively.

Parameter	Type	Description
rel	String	Specifies the prompt of the previous or next page. The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the Hypertext Reference (href) containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page.

## Example Request

- Example request 1: Querying all load balancers  
GET https://{Endpoint}/v2.0/lbaas/loadbalancers
- Example request 2: Querying load balancers by page (Each page contains one load balancer. The ID of the start load balancer is **165b6a38-5278-4569-b747-b2ee65ea84a4**. The load balancer after **165b6a38-5278-4569-b747-b2ee65ea84a4** is the queried load balancer.)  
GET https://{Endpoint}/v2.0/lbaas/loadbalancers?limit=1&marker=165b6a38-5278-4569-b747-b2ee65ea84a4
- Example request 3: Querying the load balancer using the IP address of a backend server (192.168.0.191)  
GET https://{Endpoint}/v2.0/lbaas/loadbalancers?member\_address=192.168.0.181

## Example Response

- Example response 1

```
{
  "loadbalancers": [
    {
      "description": "simple lb",
      "admin_state_up": true,
      "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",

      "provisioning_status": "ACTIVE",
      "vip_subnet_id": "5328f1e6-ce29-44f1-9493-b128a5653350",
      "listeners": [
        {
          "id": "45196943-2907-4369-87b1-c009b1d7ac35"
        }
      ],
      "vip_address": "10.0.0.2",
      "vip_port_id": "cbced4fe-6f6f-4fd6-9348-0c3d1219d6ca",
      "provider": "vlb",
      "pools": [
        {
          "id": "21d49cf7-4fd3-4cb6-8c48-b7fc6c259aab"
        }
      ],
      "id": "a9729389-6147-41a3-ab22-a24aed8692b2",
      "operating_status": "ONLINE",
      "tags": [],
      "name": "loadbalancer1",
      "created_at": "2018-07-25T01:54:13",
      "updated_at": "2018-07-25T01:54:14"
    }
  ]
}
```

- Example response 2

```
    ]
  }
}

{
  "loadbalancers": [
    {
      "description": "",
      "provisioning_status": "ACTIVE",
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "admin_state_up": true,
      "provider": "vlb",
      "pools": [
        {
          "id": "b13dba4c-a44c-4c40-8f6e-ce7a162b9f22"
        },
        {
          "id": "4b9e765f-82ee-4128-911b-0a2d9ebc74c7"
        }
      ],
      "listeners": [
        {
          "id": "21c41336-d0d3-4349-8641-6e82b4a4d097"
        }
      ],
      "vip_port_id": "44ac5d9b-b0c0-4810-9a9d-c4dbf541e47e",
      "operating_status": "ONLINE",
      "vip_address": "192.168.0.234",
      "vip_subnet_id": "9d60827e-0e5c-490a-8183-0b6ebf9084ca",
      "id": "e79a7dd6-3a38-429a-95f9-c7f78b346cbe",
      "tags": [],
      "name": "elb-robot",
      "created_at": "2018-07-25T01:54:13",
      "updated_at": "2018-07-25T01:54:14"
    }
  ],
  "loadbalancers_links": [
    {
      "href": "https://network.Region.dc1.domainname.com/v2.0/lbaas/loadbalancers?limit=10&marker=e79a7dd6-3a38-429a-95f9-c7f78b346cbe&page_reverse=True",
      "rel": "previous"
    }
  ]
}
```

- Example response 3

```
{
  "loadbalancers": [
    {
      "description": "",
      "provisioning_status": "ACTIVE",
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "created_at": "2018-11-29T13:55:20",
      "admin_state_up": true,
      "update_at": "2018-11-29T13:55:21",
      "id": "c1127125-64a9-4394-a08a-ef3be8f7ef9c",
      "pools": [
        {
          "id": "2f6895be-019b-4c82-9b53-c4a2ac009e20"
        }
      ],
      "listeners": [
        {
          "id": "5c63d176-444f-4c75-9cfe-bcb8a05a845c"
        }
      ],
      "vip_port_id": "434ac600-b779-4428-b7a7-830e047511f1",
      "operating_status": "ONLINE",
    }
  ]
}
```



```
"vip_address": "192.168.0.181",  
"vip_subnet_id": "9a303536-417c-45dc-a6db-1234b9e1c2b2",  
"provider": "vlb",  
"tags": [],  
"name": "elb-ftci"  
}  
]  
}
```

## Status Code

For details, see [Status Codes](#).

## 7.1.3 Querying Details of a Load Balancer

### Function

This API is used to query details about a load balancer using its ID. You can also query the EIP bound to the load balancer based on the value of **vip\_port\_id**.

### URI

GET /v2.0/lbaas/loadbalancers/{loadbalancer\_id}

**Table 7-16** Parameter description

Parameter	Mandatory	Type	Description
loadbalancer_id	Yes	String	Specifies the load balancer ID.

### Request

None

### Response

**Table 7-17** Parameter description

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see <a href="#">Table 7-18</a> .

**Table 7-18 loadbalancer** parameter description

Parameter	Mandatory	Type	Description
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
provisioning_status	No	String	This parameter is reserved. Specifies the provisioning status of the load balancer. The value can be <b>ACTIVE</b> .
tenant_id	No	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters. The value must be the same as the value of <b>project_id</b> in the token.
vip_subnet_id	Yes	String	Specifies the ID of the IPv4 subnet where the load balancer works. You can obtain the value by calling the API for querying subnets ({VPC endpoint}/v2.0/subnets) using the GET method. The private IP address of the load balancer is in this subnet. Only IPv4 subnets are supported. IPv6 subnets are not supported.
provider	No	String	Specifies the provider of the load balancer. The value can only be <b>vlb</b> .
vip_address	No	String	Specifies the private IP address of the load balancer. This IP address must be the one in the subnet specified by <b>vip_subnet_id</b> . If this parameter is not specified, an IP address is automatically assigned to the load balancer from the subnet specified by <b>vip_subnet_id</b> . The value contains a maximum of 64 characters.

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is <b>true</b> .

**Table 7-19 listeners** parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

**Table 7-20 pools** parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated backend server group.

## Example Request

- Example request 1: Querying details of a load balancer using its ID
- Example request 2: Querying the EIP bound to the load balancer. For details, see section "Querying EIPs" in the *Elastic IP Address API Reference*.

GET https://{EIP\_Endpoint}/v1/{project\_id}/publicips?port\_id={vip\_port\_id}

**vip\_port\_id** is the value of **vip\_port\_id** for the load balancer.

## Example Response

- Example response 1

```
{
  "loadbalancer": {
    "description": "",
    "admin_state_up": true,
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "provisioning_status": "ACTIVE",
    "vip_subnet_id": "4f5e8efe-fbbe-405e-b48c-a41202ef697c",
    "listeners": [
      {
        "id": "09e64049-2ab0-4763-a8c5-f4207875dc3e"
      }
    ],
    "vip_address": "192.168.2.4",
    "vip_port_id": "c7157e7a-036a-42ca-8474-100be22e3727",
    "provider": "vlb",
    "pools": [
      {
        "id": "b7e53dbd-62ab-4505-a280-5c066078a5c9"
      }
    ]
  },
}
```

```
"id": "3d77894d-2ffe-4411-ac0a-0d57689779b8",  
"operating_status": "ONLINE",  
"tags": [],  
"name": "lb-2",  
"created_at": "2018-07-25T01:54:13",  
"updated_at": "2018-07-25T01:54:14"  
}
```

## Status Code

For details, see [Status Codes](#).

## 7.1.4 Querying the Status Tree of a Load Balancer

### Function

This API is used to query the status tree of a load balancer. You can use this API to query details about the associated listeners, backend server groups, backend servers, health checks, forwarding policies, and forwarding rules, helping you understand the topology of resources associated with the load balancer.

### URI

GET /v2.0/lbaas/loadbalancers/{loadbalancer\_id}/statuses

**Table 7-21** Parameter description

Parameter	Mandatory	Type	Description
loadbalancer_id	Yes	String	Specifies the load balancer ID.

### Request

None

### Response

**Table 7-22** Response parameters

Parameter	Type	Description
statuses	Object	Specifies the status tree of a load balancer. For details, see <a href="#">Table 7-23</a> .

**Table 7-23 statuses** parameter description

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see <a href="#">Table 7-24</a> .

**Table 7-24 loadbalancer** parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
listeners	Array	Lists the listeners added to the load balancer. For details of this parameter, see <a href="#">Table 7-25</a> .
pools	Array	Lists the backend server groups associated with the load balancer. For details of this parameter, see <a href="#">Table 7-26</a> .
operating_status	String	This field is reserved. It specifies the operating status of the load balancer. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b> (default): The load balancer is running normally.</li><li>● <b>DEGRADED</b>: This status is displayed only when <b>provisioning_status</b> of a forwarding policy or forwarding rule added to a listener of the load balancer is set to <b>ERROR</b> and the API for querying the load balancer status tree is called.</li><li>● <b>DISABLED</b>: This status is displayed only when <b>admin_state_up</b> of the load balancer is set to <b>false</b> and the API for querying the load balancer status tree is called.</li></ul>

Parameter	Type	Description
provisioning_status	String	This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the load balancer.

**Table 7-25 listeners** parameter description

Parameter	Type	Description
id	String	Specifies the listener ID.
name	String	Specifies the listener name.
l7policies	Array	Lists associated forwarding policies. For details of this parameter, see <a href="#">Table 7-29</a> .
pools	Array	Lists the backend server groups associated with the listener. For details of this parameter, see <a href="#">Table 7-26</a> .
operating_status	String	This parameter is reserved, and its value can only be <b>ONLINE</b> . It specifies the operating status of the listener.
provisioning_status	String	This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the listener.

**Table 7-26 pools** parameter description

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.
name	String	Specifies the name of the backend server group.
healthmonitor	Object	Provides health check details of the backend server group. For details of this parameter, see <a href="#">Table 7-27</a> .
members	Array	Lists the members contained in the backend server group. For details of this parameter, see <a href="#">Table 7-28</a> .

Parameter	Type	Description
operating_status	String	This parameter is reserved, and its value can only be <b>ONLINE</b> . It specifies the operating status of the backend server group.
provisioning_status	String	This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the backend server group.

**Table 7-27 healthmonitor** parameter description

Parameter	Type	Description
id	String	Specifies the health check ID.
name	String	Specifies the health check name.
type	String	<ul style="list-style-type: none"><li>Specifies the health check protocol.</li><li>The value can be <b>UDP_CONNECT</b>, <b>TCP</b>, or <b>HTTP</b>.</li></ul>
provisioning_status	String	This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the health check.

**Table 7-28 members** parameter description

Parameter	Type	Description
id	String	Specifies the backend server ID.
address	String	Specifies the private IP address of the backend server, for example, 192.168.3.11.
protocol_port	Integer	Specifies the port used by the backend server. The port number ranges from 0 to 65535.

Parameter	Type	Description
operating_status	String	<p>This parameter is reserved. It specifies the operating status of the backend server. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>● <b>ONLINE</b>: The backend server is running normally.</li> <li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group that the backend server belongs to.</li> <li>● <b>DISABLED</b>: The backend server is not available. This status is displayed only when <b>admin_state_up</b> of the backend server, or the backend server group to which it belongs, or the associated load balancer is set to <b>false</b> and the API for querying the load balancer status tree is called.</li> <li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li> </ul> <p><b>NOTE</b> When <b>admin_state_up</b> is set to <b>false</b> and <b>operating_status</b> is set to <b>OFFLINE</b> for a backend server, <b>DISABLED</b> is returned for <b>operating_status</b> of the backend server in the response of this API.</p>
provisioning_status	String	<p>This parameter is reserved, and its value can only be <b>ACTIVE</b>.</p> <p>It specifies the provisioning status of the backend server.</p>

**Table 7-29** l7policies parameter description

Parameter	Type	Description
id	String	Specifies the forwarding policy ID.
name	String	Specifies the forwarding policy name.
rules	Array	Lists the forwarding rules of the forwarding policy. For details of this parameter, see <a href="#">Table 7-30</a> .



Parameter	Type	Description
action	String	<ul style="list-style-type: none"> <li>Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener.</li> <li>The value can be <b>REDIRECT_TO_POOL</b> or <b>REDIRECT_TO_LISTENER</b>. <ul style="list-style-type: none"> <li><b>REDIRECT_TO_POOL</b>: Requests are forwarded to another backend server group.</li> <li><b>REDIRECT_TO_LISTENER</b>: Requests are redirected to an HTTPS listener.</li> </ul> </li> </ul>
provisioning_status	String	<p>This parameter is reserved.</p> <p>It specifies the provisioning status of the forwarding policy. Value options:</p> <ul style="list-style-type: none"> <li><b>ACTIVE</b> (default): The forwarding policy is normal.</li> <li><b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li> </ul>

**Table 7-30** rules parameter description

Parameter	Type	Description
id	String	Specifies the forwarding rule ID.
type	String	<ul style="list-style-type: none"> <li>Specifies the match type of a forwarding rule.</li> <li>The value can be <b>PATH</b> or <b>HOST_NAME</b>. <ul style="list-style-type: none"> <li><b>PATH</b>: matches the path in the request.</li> <li><b>HOST_NAME</b>: matches the domain name in the request.</li> </ul> </li> </ul>
provisioning_status	String	<p>This parameter is reserved.</p> <p>It specifies the provisioning status of the forwarding rule. The value can be one of the following:</p> <ul style="list-style-type: none"> <li><b>ACTIVE</b> (default): The forwarding rule is normal.</li> <li><b>ERROR</b>: Another forwarding policy of the same listener has the same forwarding rule.</li> </ul>

## Example Request

- Example request  
GET <https://{Endpoint}/v2.0/lbaas/loadbalancers/38278031-cfca-44be-81be-a412f618773b/statuses>

## Example Response

- Example response

```
{
  "statuses": {
    "loadbalancer": {
      "name": "lb-jy",
      "provisioning_status": "ACTIVE",
      "listeners": [
        {
          "name": "listener-jy-1",
          "provisioning_status": "ACTIVE",
          "pools": [
            {
              "name": "pool-jy-1",
              "provisioning_status": "ACTIVE",
              "healthmonitor": {
                "type": "TCP",
                "id": "7422b51a-0ed2-4702-9429-4f88349276c6",
                "name": "",
                "provisioning_status": "ACTIVE"
              },
              "members": [
                {
                  "protocol_port": 80,
                  "address": "192.168.44.11",
                  "id": "7bbf7151-0dce-4087-b316-06c7fa17b894",
                  "operating_status": "ONLINE",
                  "provisioning_status": "ACTIVE"
                }
              ]
            }
          ],
          "id": "c54b3286-2349-4c5c-ade1-e6bb0b26ad18",
          "operating_status": "ONLINE"
        }
      ],
      "l7policies": [],
      "id": "eb84c5b4-9bc5-4bee-939d-3900fb05dc7b",
      "operating_status": "ONLINE"
    }
  },
  "pools": [
    {
      "name": "pool-jy-1",
      "provisioning_status": "ACTIVE",
      "healthmonitor": {
        "type": "TCP",
        "id": "7422b51a-0ed2-4702-9429-4f88349276c6",
        "name": "",
        "provisioning_status": "ACTIVE"
      },
      "members": [
        {
          "protocol_port": 80,
          "address": "192.168.44.11",
          "id": "7bbf7151-0dce-4087-b316-06c7fa17b894",
          "operating_status": "ONLINE",
          "provisioning_status": "ACTIVE"
        }
      ],
      "id": "c54b3286-2349-4c5c-ade1-e6bb0b26ad18",
      "operating_status": "ONLINE"
    }
  ],
  "id": "38278031-cfca-44be-81be-a412f618773b",
```

```
    "operating_status": "ONLINE"  
  }  
}
```

## Status Code

For details, see [Status Codes](#).

## 7.1.5 Updating a Load Balancer

### Function

This API is used to update the name or description of a load balancer.

### URI

PUT /v2.0/lbaas/loadbalancers/{loadbalancer\_id}

**Table 7-31** Parameter description

Parameter	Mandatory	Type	Description
loadbalancer_id	Yes	String	Specifies the load balancer ID.

### Request

**Table 7-32** Parameter description

Parameter	Mandatory	Type	Description
loadbalancer	Yes	Object	Specifies the load balancer. For details, see <a href="#">Table 7-33</a> .

**Table 7-33** loadbalancer parameter description

Parameter	Mandatory	Type	Description
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.

Parameter	Mandatory	Type	Description
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is <b>true</b> .

## Response

**Table 7-34** Response parameters

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see <a href="#">Table 7-35</a> .

**Table 7-35** loadbalancer parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.
tenant_id	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters.
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.

Parameter	Type	Description
vip_subnet_id	String	Specifies the ID of the IPv4 subnet where the load balancer works.
vip_port_id	String	Specifies the ID of the port bound to the private IP address of the load balancer. When you create a load balancer, the system automatically creates a port and associates it with a security group. However, the security group will not take effect.
provider	String	Specifies the provider of the load balancer.
vip_address	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.
listeners	Array	Lists the IDs of listeners added to the load balancer. For details, see <a href="#">Table 7-5</a> .
pools	Array	Lists the IDs of backend server groups associated with the load balancer. For details, see <a href="#">Table 7-6</a> .
operating_status	String	This parameter is reserved, and its value can be <b>ONLINE</b> or <b>FROZEN</b> . It specifies the operating status of the load balancer.
provisioning_status	String	This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the load balancer.
admin_state_up	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>
tags	Array	Lists load balancer tags.

Parameter	Type	Description
created_at	String	Specifies the time when the load balancer was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.
updated_at	String	Specifies the time when the load balancer was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.

**Table 7-36 listeners** parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

**Table 7-37 pools** parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated backend server group.

## Example Request

- Example request: Modifying the load balancer name and description  
PUT [https://\[Endpoint\]/v2.0/lbaas/loadbalancers/1e11b74e-30b7-4b78-b09b-84aec4a04487](https://[Endpoint]/v2.0/lbaas/loadbalancers/1e11b74e-30b7-4b78-b09b-84aec4a04487)

```
{
  "loadbalancer": {
    "name": "lb_update_test",
    "description": "lb update test"
  }
}
```

## Example Response

- Example response
- ```
{
  "loadbalancer": {
    "description": "simple lb2",
    "admin_state_up": true,
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",
    "provisioning_status": "ACTIVE",
    "vip_subnet_id": "823d5866-6e30-45c2-9b1a-a1ebc3757fdb",
  }
}
```

```
"listeners": [
  {
    "id": "37ffe679-08ef-436e-b6bd-cf66fb4c3de2"
  }
],
"vip_address": "192.172.1.68",
"vip_port_id": "f42e3019-67f7-4d2a-8d1c-af49e7c22fa6",
"tags": [],
"provider": "vlb",
"pools": [
  {
    "id": "75c4f2d4-a213-4408-9fa8-d64708e8d1df"
  }
],
"id": "c32a9f9a-0cc6-4f38-bb9c-cde79a533c19",
"operating_status": "ONLINE",
"name": "loadbalancer-test2",
"created_at": "2018-07-25T01:54:13",
"updated_at": "2018-07-25T01:54:14"
}
```

## Status Code

For details, see [Status Codes](#).

## 7.1.6 Deleting a Load Balancer

### Function

This API is used to delete a specific load balancer.

### Constraints

All listeners added to the load balancer must be deleted before the load balancer is deleted.

### URI

DELETE /v2.0/lbaas/loadbalancers/{loadbalancer\_id}

**Table 7-38** Parameter description

| Parameter       | Mandatory | Type   | Description                     |
|-----------------|-----------|--------|---------------------------------|
| loadbalancer_id | Yes       | String | Specifies the load balancer ID. |

### Request

None

### Response

None

## Example Request

Example request: Deleting a load balancer

```
DELETE https://{endpoint}/v2.0/lbaas/loadbalancers/90f7c765-0bc9-47c4-8513-4cc0c264c8f8
```

## Example Response

Example response

None

## Status Code

For details, see [Status Codes](#).

# 7.2 Listener

## 7.2.1 Adding a Listener

### Function

This API is used to add a listener to a load balancer.

### URI

POST /v2.0/lbaas/listeners

### Request

**Table 7-39** Parameter description

| Parameter | Mandatory | Type   | Description                                                           |
|-----------|-----------|--------|-----------------------------------------------------------------------|
| listener  | Yes       | Object | Specifies the listener. For details, see <a href="#">Table 7-40</a> . |

**Table 7-40** listener parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                          |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id | No        | String | Specifies the ID of the project where the listener is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters. |



| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                              |
|------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                          |
| description      | No        | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                |
| protocol         | Yes       | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                                                                                                                    |
| protocol_port    | Yes       | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.<br><b>NOTE</b><br>If the protocol used by the listener is UDP, the port number cannot be 4789.                                                                                                                                                                       |
| loadbalancer_id  | Yes       | String  | Specifies the ID of the associated load balancer.                                                                                                                                                                                                                                                                                                        |
| connection_limit | No        | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                                                     |
| admin_state_up   | No        | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                               |
| http2_enable     | No        | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li><b>true</b>: HTTP/2 is used.</li><li><b>false</b>: HTTP/2 is not used.</li></ul> The default value is <b>false</b> .<br>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |

| Parameter                 | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_pool_id           | No        | String | <p>Specifies the ID of the associated backend server group.</p> <p>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p> <p>This parameter has the following constraints:</p> <ul style="list-style-type: none"> <li>• Its value cannot be the ID of any backend server group of other listeners.</li> <li>• Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.</li> </ul> <p>The relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| default_tls_container_ref | No        | String | <p>Specifies the ID of the server certificate used by the listener.</p> <p>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p> <p>The default value is <b>null</b> when <b>protocol</b> is not set to <b>TERMINATED_HTTPS</b>.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Parameter                   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                     |
|-----------------------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client_ca_tls_container_ref | No        | String | <p>Specifies the ID of the CA certificate used by the listener.</p> <p>The default value is <b>null</b>.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p>                                                 |
| sni_container_refs          | No        | Array  | <p>Lists the IDs of SNI certificates (server certificates with domain names) used by the listener.</p> <p>If the parameter value is an empty list, the SNI feature is disabled.</p> <p>The default value is [].</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p> |

Table 7-41 `tls_ciphers_policy` parameter description

| Security Policy | TLS Version                   | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLS 1.2<br>TLS 1.1<br>TLS 1.0 | <p>ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA</p> |

| Security Policy | TLS Version             | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0         | TLS 1.2 TLS 1.1 TLS 1.0 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA |
| tls-1-1         | TLS 1.2 TLS 1.1         |                                                                                                                                                                                                                                                                                                                                                                                                       |
| tls-1-2         | TLS 1.2                 |                                                                                                                                                                                                                                                                                                                                                                                                       |
| tls-1-2-strict  | TLS 1.2                 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384                                                                                                               |

## Response

**Table 7-42** Response parameters

| Parameter | Type   | Description                                                           |
|-----------|--------|-----------------------------------------------------------------------|
| listener  | Object | Specifies the listener. For details, see <a href="#">Table 7-43</a> . |

**Table 7-43** listeners parameter description

| Parameter   | Type   | Description                                                                                                                           |
|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the listener ID.                                                                                                            |
| tenant_id   | String | Specifies the ID of the project where the listener is used.                                                                           |
| name        | String | Specifies the listener name.                                                                                                          |
| description | String | Provides supplementary information about the listener.                                                                                |
| protocol    | String | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> . |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                           |
|-----------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol_port               | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.                                                                                                                                                                                                                                   |
| loadbalancers               | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 7-44</a> .                                                                                                                                                                                                                       |
| connection_limit            | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                  |
| admin_status_up             | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: The load balancer is enabled.</li><li>• <b>false</b>: The load balancer is disabled.</li></ul>                                |
| http2_enable                | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: HTTP/2 is used.</li><li>• <b>false</b>: HTTP/2 is not used.</li></ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id             | String  | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                           |
| default_tls_container_ref   | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                                                                               |
| client_ca_tls_container_ref | String  | Specifies the ID of the CA certificate used by the listener. For details, see <a href="#">Certificate</a> .                                                                                                                                                                                                           |
| sni_container_refs          | Array   | Lists the IDs of SNI certificates (server certificates with domain names) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.                                                                                                                                              |
| tags                        | Array   | Tags the listener.                                                                                                                                                                                                                                                                                                    |
| created_at                  | String  | Specifies the time when the listener was created. The UTC time is in <b>YYYY-MM-DDTHH:MM:SS</b> format.                                                                                                                                                                                                               |

| Parameter  | Type   | Description                                                                                             |
|------------|--------|---------------------------------------------------------------------------------------------------------|
| updated_at | String | Specifies the time when the listener was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |

**Table 7-44 loadbalancers** parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

## Example Request

- Example request 1: Adding a TCP listener

POST <https://{Endpoint}/v2.0/lbaas/listeners>

```
{
  "listener": {
    "protocol_port": 80,
    "protocol": "TCP",
    "loadbalancer_id": "0416b6f1-877f-4a51-987e-978b3f084253",
    "name": "listener-test",
    "admin_state_up": true
  }
}
```

- Example request 2: Adding an HTTPS listener

POST <https://{Endpoint}/v2.0/lbaas/listeners>

```
{
  "listener": {
    "protocol_port": 25,
    "protocol": "TERMINATED_HTTPS",
    "default_tls_container_ref": "02dcd56799e045bf8b131533cc911dd6",
    "loadbalancer_id": "0416b6f1-877f-4a51-987e-978b3f084253",
    "name": "listener-test",
    "admin_state_up": true
  }
}
```

## Example Response

- Example response 1

```
{
  "listener": {
    "protocol_port": 80,
    "protocol": "TCP",
    "description": "",
    "client_ca_tls_container_ref": null,
    "default_tls_container_ref": null,
    "admin_state_up": true,
    "http2_enable": false,
    "loadbalancers": [
      {
        "id": "0416b6f1-877f-4a51-987e-978b3f084253"
      }
    ],
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",
  }
}
```

```
"sni_container_refs": [],
"connection_limit": -1,
"default_pool_id": null,
"tags": [],
"id": "b7f32b52-6f17-4b16-9ec8-063d71b653ce",
"name": "listener-test",
"created_at": "2018-07-25T01:54:13",
"updated_at": "2018-07-25T01:54:14"
}
}
```

- Example response 2

```
{
  "listener": {
    "protocol_port": 25,
    "protocol": "TERMINATED_HTTPS",
    "description": "",
    "default_tls_container_ref": "02dcd56799e045bf8b131533cc911dd6",
    "sni_container_refs": [],
    "loadbalancers": [
      {
        "id": "0416b6f1-877f-4a51-987e-978b3f084253"
      }
    ],
    "tenant_id": "601240b9c5c94059b63d484c92cfe308",

    "created_at": "2019-01-21T12:38:31",
    "client_ca_tls_container_ref": null,
    "connection_limit": -1,
    "updated_at": "2019-01-21T12:38:31",
    "http2_enable": false,
    "admin_state_up": true,
    "default_pool_id": null,
    "id": "b56634cd-5ba8-460e-b5a2-6de5ba8eaf60",
    "tags": [],
    "name": "listener-test"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.2.2 Querying Listeners

### Function

This API is used to query the listeners and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

You can query listeners using information such as listener ID, protocol used by the listener, port used by the listener, or backend server private IP address.

### Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

## URI

GET /v2.0/lbaas/listeners

## Request

**Table 7-45** Parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker           | No        | String  | Specifies the ID of the listener from which pagination query starts, that is, the ID of the last listener on the previous page.<br>This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                                   |
| limit            | No        | Integer | Specifies the number of listeners on each page.                                                                                                                                                                                                                                                                                                                                                                               |
| page_reverse     | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> . |
| id               | No        | String  | Specifies the listener ID.                                                                                                                                                                                                                                                                                                                                                                                                    |
| tenant_id        | No        | String  | Specifies the ID of the project where the listener is used.                                                                                                                                                                                                                                                                                                                                                                   |
| name             | No        | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                               |
| description      | No        | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                     |
| loadbalancer_id  | No        | String  | Specifies the ID of the associated load balancer.                                                                                                                                                                                                                                                                                                                                                                             |
| connection_limit | No        | Integer | Specifies the maximum number of connections.                                                                                                                                                                                                                                                                                                                                                                                  |



| Parameter                   | Mandatory | Type    | Description                                                                                                                                                                                                   |
|-----------------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up              | No        | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                    |
| default_pool_id             | No        | String  | Specifies the ID of the associated backend server group.                                                                                                                                                      |
| http2_enable                | No        | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: HTTP/2 is used.</li><li>• <b>false</b>: HTTP/2 is not used.</li></ul> |
| default_tls_container_ref   | No        | String  | Specifies the ID of the server certificate used by the listener.<br>The value contains a maximum of 128 characters.                                                                                           |
| client_ca_tls_container_ref | No        | String  | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.                                                                                               |
| protocol                    | No        | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                         |
| protocol_port               | No        | Integer | Specifies the port used by the listener.                                                                                                                                                                      |
| tls_container_id            | No        | String  | Queries the listener associated with the certificate.                                                                                                                                                         |
| sni_container_refs          | No        | String  | Queries the listener associated with the SNI certificate.                                                                                                                                                     |

**Table 7-46** `tls_ciphers_policy` parameter description

| Security Policy | TLS Version                   | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLS 1.2<br>TLS 1.1<br>TLS 1.0 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |
| tls-1-0         | TLS 1.2<br>TLS 1.1<br>TLS 1.0 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                              |
| tls-1-1         | TLS 1.2<br>TLS 1.1            | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                                        |
| tls-1-2         | TLS 1.2                       | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                                        |
| tls-1-2-strict  | TLS 1.2                       | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384                                                                                                                                                                                                                                                                                                                                                                                                            |

## Response

**Table 7-47** Parameter description

| Parameter       | Type  | Description                                                                                                                                                                                           |
|-----------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| listeners       | Array | Lists the listeners. For details, see <a href="#">Table 7-48</a> .                                                                                                                                    |
| listeners_links | Array | Provides links to the previous or next page during pagination query, respectively. This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 7-51</a> . |

**Table 7-48** listeners parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                                      |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the listener ID.                                                                                                                                                                                                                                       |
| tenant_id        | String  | Specifies the ID of the project where the listener is used. The value contains a maximum of 255 characters.                                                                                                                                                      |
| name             | String  | Specifies the listener name. The value contains a maximum of 255 characters.                                                                                                                                                                                     |
| description      | String  | Provides supplementary information about the listener. The value contains a maximum of 255 characters.                                                                                                                                                           |
| protocol         | String  | Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                               |
| protocol_port    | Integer | Specifies the port used by the listener. The port number ranges from 1 to 65535.                                                                                                                                                                                 |
| loadbalancers    | Array   | Specifies the ID of the associated load balancer.                                                                                                                                                                                                                |
| connection_limit | Integer | Specifies the maximum number of connections. The value ranges from <b>-1</b> to <b>2147483647</b> .<br><b>NOTE</b><br>This parameter is reserved. The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections. |
| admin_status_up  | Boolean | Specifies the administrative status of the listener. This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                          |

| Parameter                 | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| http2_enable              | Boolean | <p>Specifies whether to use HTTP/2.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <ul style="list-style-type: none"><li>• <b>true</b>: HTTP/2 will be used.</li><li>• <b>false</b>: HTTP/2 will not be used.</li></ul> <p><b>NOTE</b><br/>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                                                                                                                                |
| keepalive_timeout         | Integer | <p>Specifies the idle timeout duration in the unit of second.</p> <p>This parameter applies only to TCP, HTTP, or HTTPS listeners.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>• TCP listeners: The value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li><li>• HTTP or HTTPS listeners: The value ranges from <b>0</b> to <b>4000</b>, and the default value is <b>60</b>.</li></ul>                                                                                               |
| client_timeout            | Integer | <p>Specifies the request timeout duration in the unit of second.</p> <p>The value ranges from <b>1</b> to <b>300</b>. The default value is <b>60</b>.</p> <p>This parameter is valid only when <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>. In other cases, the request body does not contain this parameter. Otherwise, an error is reported.</p> <p>When <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>, if the request body does not contain this parameter or the value of this parameter is <b>null</b>, the default value is used.</p>  |
| member_timeout            | Integer | <p>Specifies the response timeout duration in the unit of second.</p> <p>The value ranges from <b>1</b> to <b>300</b>. The default value is <b>60</b>.</p> <p>This parameter is valid only when <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>. In other cases, the request body does not contain this parameter. Otherwise, an error is reported.</p> <p>When <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>, if the request body does not contain this parameter or the value of this parameter is <b>null</b>, the default value is used.</p> |
| default_pool_id           | String  | <p>Specifies the ID of the associated backend server group.</p> <p><b>NOTE</b><br/>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p>                                                                                                                                                                                                                                                          |
| default_tls_container_ref | String  | <p>Specifies the ID of the server certificate used by the listener.</p> <p>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p> <p>The value contains a maximum of 128 characters.</p>                                                                                                                                                                                                                                                                                                                                      |

| Parameter              | Type   | Description                                                                                                                                             |
|------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| client_certificate_ref | String | Specifies the ID of the CA certificate used by the listener. The value contains a maximum of 128 characters.                                            |
| sni_certificate_refs   | Array  | Lists the IDs of SNI certificates (server certificates with domain names) used by the listener.                                                         |
| tags                   | Array  | Tags the listener.                                                                                                                                      |
| created_at             | String | Specifies the time when the listener was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.  |
| updated_at             | String | Specifies the time when the listener was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.  |
| listeners_links        | Array  | Provides links to the previous or next page during pagination query, respectively. This parameter exists only in the response body of pagination query. |

**Table 7-49** loadbalancers parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

**Table 7-50** `tls_ciphers_policy` parameter description

| Security Policy | TLS Version                   | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLS 1.2<br>TLS 1.1<br>TLS 1.0 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |
| tls-1-0         | TLS 1.2<br>TLS 1.1<br>TLS 1.0 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                              |
| tls-1-1         | TLS 1.2<br>TLS 1.1            | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                        |
| tls-1-2         | TLS 1.2                       | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                        |
| tls-1-2-strict  | TLS 1.2                       | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384                                                                                                                                                                                                                                                                                                                                                                                            |

**Table 7-51** `listeners_links` parameter description

| Parameter | Type   | Description                                                                        |
|-----------|--------|------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively. |

| Parameter | Type   | Description                                                                                                                                                                                                                                                           |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rel       | String | Specifies the prompt of the previous or next page.<br>The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

## Example Request

- Example request 1: Querying all listeners  
GET https://{Endpoint}/v2.0/lbaas/listeners?limit=2
- Request example 2: Querying UDP listeners  
GET https://{Endpoint}/v2.0/lbaas/listeners?protocol=UDP

## Example Response

- Example response 1

```
{
  "listeners": [
    {
      "client_ca_tls_container_ref": null,
      "protocol": "TCP",
      "description": "",
      "default_tls_container_ref": null,
      "admin_state_up": true,
      "http2_enable": false,
      "loadbalancers": [
        {
          "id": "bc7ba445-035a-4464-a1a3-a62cf4a14116"
        }
      ],
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "sni_container_refs": [],
      "connection_limit": -1,
      "protocol_port": 80,
      "default_pool_id": "ed75f16e-fcc6-403e-a3fb-4eae82005eab",
      "id": "75045172-70e9-480d-9443-b8b6459948f7",
      "tags": [],
      "name": "listener-cb2n",

      "created_at": "2018-07-25T01:54:13",
      "updated_at": "2018-07-25T01:54:14"
    },
    {
      "client_ca_tls_container_ref": null,
      "protocol": "TCP",
      "description": "",
      "default_tls_container_ref": null,
      "admin_state_up": true,
      "http2_enable": false,
      "loadbalancers": [
        {
          "id": "165b6a38-5278-4569-b747-b2ee65ea84a4"
        }
      ],
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "sni_container_refs": [],
      "connection_limit": -1,
```

```
    "protocol_port": 8080,
    "default_pool_id": null,
    "id": "dada0003-7b0e-4de8-a4e1-1e937be2ba14",
    "tags": [],
    "name": "lsnr_name_mod",
    "created_at": "2018-07-25T01:54:13",
    "updated_at": "2018-07-25T01:54:14"
  },
  ],
  "listeners_links": [
    {
      "href": "https://{Endpoint}/v2.0/lbaas/listeners?limit=2&marker=042cc6a5-
e385-4e39-83de-4dde1f801ccb",
      "rel": "next"
    },
    {
      "href": "https://{Endpoint}/v2.0/lbaas/listeners?limit=2&marker=025fcaa9-0159-4a0d-8583-
d97fa77d9972&page_reverse=True",
      "rel": "previous"
    }
  ]
}
```

- Example response 2

```
{
  "listeners": [
    {
      "protocol_port": 64809,
      "protocol": "UDP",
      "description": "",
      "default_tls_container_ref": null,
      "sni_container_refs": [],
      "loadbalancers": [
        {
          "id": "c1127125-64a9-4394-a08a-ef3be8f7ef9c"
        }
      ],
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "created_at": "2018-11-29T13:56:21",
      "client_ca_tls_container_ref": null,
      "connection_limit": -1,
      "updated_at": "2018-11-29T13:56:22",
      "http2_enable": false,

      "admin_state_up": true,
      "default_pool_id": "2f6895be-019b-4c82-9b53-c4a2ac009e20",
      "id": "5c63d176-444f-4c75-9cfe-bcb8a05a845c",
      "tags": [],
      "name": "listener-tvp8"
    }
  ]
}
```

## Status Code

For details, see [Status Codes](#).

## 7.2.3 Querying Details of a Listener

### Function

This API is used to query details about a listener using its ID.



## URI

GET /v2.0/lbaas/listeners/{listener\_id}

**Table 7-52** Parameter description

| Parameter   | Mandatory | Type   | Description                |
|-------------|-----------|--------|----------------------------|
| listener_id | Yes       | String | Specifies the listener ID. |

## Request

None

## Response

**Table 7-53** Response parameters

| Parameter | Type   | Description                                                        |
|-----------|--------|--------------------------------------------------------------------|
| listener  | Object | Lists the listeners. For details, see <a href="#">Table 7-54</a> . |

**Table 7-54** listeners parameter description

| Parameter     | Type    | Description                                                                                                                           |
|---------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id            | String  | Specifies the listener ID.                                                                                                            |
| tenant_id     | String  | Specifies the ID of the project where the listener is used.                                                                           |
| name          | String  | Specifies the listener name.                                                                                                          |
| description   | String  | Provides supplementary information about the listener.                                                                                |
| protocol      | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> . |
| protocol_port | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.                                                   |
| loadbalancers | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 7-44</a> .                                       |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                           |
|-----------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connection_limit            | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                  |
| admin_status_up             | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: The load balancer is enabled.</li><li>• <b>false</b>: The load balancer is disabled.</li></ul>                                |
| http2_enable                | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: HTTP/2 is used.</li><li>• <b>false</b>: HTTP/2 is not used.</li></ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id             | String  | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                           |
| default_tls_container_ref   | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                                                                               |
| client_ca_tls_container_ref | String  | Specifies the ID of the CA certificate used by the listener. For details, see <a href="#">Certificate</a> .                                                                                                                                                                                                           |
| sni_container_refs          | Array   | Lists the IDs of SNI certificates (server certificates with domain names) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.                                                                                                                                              |
| tags                        | Array   | Tags the listener.                                                                                                                                                                                                                                                                                                    |
| created_at                  | String  | Specifies the time when the listener was created. The UTC time is in <b>YYYY-MM-DDTHH:MM:SS</b> format.                                                                                                                                                                                                               |
| updated_at                  | String  | Specifies the time when the listener was updated. The UTC time is in <b>YYYY-MM-DDTHH:MM:SS</b> format.                                                                                                                                                                                                               |

**Table 7-55 loadbalancers** parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

## Example Request

- Example request: Querying details of a listener  
GET https://{Endpoint}/v2.0/lbaas/listeners/09e64049-2ab0-4763-a8c5-f4207875dc3e

## Example Response

- Example response

```
{
  "listener": {
    "protocol_port": 8000,
    "protocol": "TCP",
    "description": "",
    "client_ca_tls_container_ref": null,
    "default_tls_container_ref": null,
    "admin_state_up": true,
    "http2_enable": false,
    "loadbalancers": [
      {
        "id": "3d77894d-2ffe-4411-ac0a-0d57689779b8"
      }
    ],
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "sni_container_refs": [],
    "connection_limit": -1,
    "default_pool_id": "b7e53dbd-62ab-4505-a280-5c066078a5c9",
    "id": "09e64049-2ab0-4763-a8c5-f4207875dc3e",
    "tags": [],
    "name": "listener-2",
    "created_at": "2018-07-25T01:54:13",
    "updated_at": "2018-07-25T01:54:14"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.2.4 Updating a Listener

### Function

This API is used to update a listener, such as listener name, description, associated backend server groups, and server certificates.

### Constraints

- If the provisioning status of the associated load balancer is not **ACTIVE**, the listener cannot be updated.
- Only users with the ELB administrator permissions can specify the value of **connection\_limit**.

- The **default\_pool\_id** parameter has the following constraints:
  - Its value cannot be the ID of any backend server group of other listeners.
  - Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.
- The relationships between the protocol used by the listener and the protocol of the backend server group are as follows:
  - When the protocol used by the listener is **TCP**, the protocol of the backend server group must be **TCP**.
  - When the protocol used by the listener is **UDP**, the protocol of the backend server group must be **UDP**.
  - When the protocol used by the listener is **HTTP** or **TERMINATED\_HTTPS**, the protocol of the backend server group must be **HTTP**.

## URI

PUT /v2.0/lbaas/listeners/{listener\_id}

**Table 7-56** Parameter description

| Parameter   | Mandatory | Type   | Description                |
|-------------|-----------|--------|----------------------------|
| listener_id | Yes       | String | Specifies the listener ID. |

## Request

**Table 7-57** Parameter description

| Parameter | Mandatory | Type   | Description                                                           |
|-----------|-----------|--------|-----------------------------------------------------------------------|
| listener  | Yes       | Object | Specifies the listener. For details, see <a href="#">Table 7-58</a> . |

**Table 7-58** listener parameter description

| Parameter   | Mandatory | Type   | Description                                                                                               |
|-------------|-----------|--------|-----------------------------------------------------------------------------------------------------------|
| name        | No        | String | Specifies the listener name.<br>The value contains a maximum of 255 characters.                           |
| description | No        | String | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters. |

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                           |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connection_limit | No        | Integer | <p>Specifies the maximum number of connections.</p> <p>The value ranges from <b>-1</b> to <b>2147483647</b>.</p> <p>This parameter is reserved. Only users with the ELB administrator permissions can specify this field.</p>                                                                                                         |
| http2_enable     | No        | Boolean | <p>Specifies whether to use HTTP/2.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <ul style="list-style-type: none"><li>• <b>true</b>: HTTP/2 is used.</li><li>• <b>false</b>: HTTP/2 is not used.</li></ul> <p>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b>.</p> |

| Parameter                 | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_pool_id           | No        | String  | <p>Specifies the ID of the associated backend server group.</p> <p>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p> <p>This parameter has the following constraints:</p> <ul style="list-style-type: none"><li>• Its value cannot be the ID of any backend server group of other listeners.</li><li>• Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.</li></ul> <p>The relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"><li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li><li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li><li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li></ul> |
| admin_state_up            | No        | Boolean | <p>Specifies the administrative status of the listener.</p> <p>This parameter is reserved, and the default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| default_tls_container_ref | No        | String  | <p>Specifies the ID of the server certificate used by the listener.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Parameter                   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                      |
|-----------------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client_ca_tls_container_ref | No        | String | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.<br><b>NOTE</b><br>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                          |
| sni_container_refs          | No        | Array  | Lists the IDs of SNI certificates (server certificates with domain names) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.<br><b>NOTE</b><br>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> . |

Table 7-59 **tls\_ciphers\_policy** parameter description

| Security Policy | TLS Version                   | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLS 1.2<br>TLS 1.1<br>TLS 1.0 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |

| Security Policy | TLS Version             | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0         | TLS 1.2 TLS 1.1 TLS 1.0 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA |
| tls-1-1         | TLS 1.2 TLS 1.1         |                                                                                                                                                                                                                                                                                                                                                                                                       |
| tls-1-2         | TLS 1.2                 |                                                                                                                                                                                                                                                                                                                                                                                                       |
| tls-1-2-strict  | TLS 1.2                 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384                                                                                                               |

## Response

**Table 7-60** Response parameters

| Parameter | Type   | Description                                                           |
|-----------|--------|-----------------------------------------------------------------------|
| listener  | Object | Specifies the listener. For details, see <a href="#">Table 7-61</a> . |

**Table 7-61** listeners parameter description

| Parameter   | Type   | Description                                                                                                                           |
|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the listener ID.                                                                                                            |
| tenant_id   | String | Specifies the ID of the project where the listener is used.                                                                           |
| name        | String | Specifies the listener name.                                                                                                          |
| description | String | Provides supplementary information about the listener.                                                                                |
| protocol    | String | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> . |



| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                           |
|-----------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol_port               | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.                                                                                                                                                                                                                                   |
| loadbalancers               | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 7-44</a> .                                                                                                                                                                                                                       |
| connection_limit            | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                  |
| admin_status_up             | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: The load balancer is enabled.</li><li>• <b>false</b>: The load balancer is disabled.</li></ul>                                |
| http2_enable                | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: HTTP/2 is used.</li><li>• <b>false</b>: HTTP/2 is not used.</li></ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id             | String  | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                           |
| default_tls_container_ref   | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                                                                               |
| client_ca_tls_container_ref | String  | Specifies the ID of the CA certificate used by the listener. For details, see <a href="#">Certificate</a> .                                                                                                                                                                                                           |
| sni_container_refs          | Array   | Lists the IDs of SNI certificates (server certificates with domain names) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.                                                                                                                                              |
| tags                        | Array   | Tags the listener.                                                                                                                                                                                                                                                                                                    |
| created_at                  | String  | Specifies the time when the listener was created. The UTC time is in <b>YYYY-MM-DDTHH:MM:SS</b> format.                                                                                                                                                                                                               |

| Parameter  | Type   | Description                                                                                             |
|------------|--------|---------------------------------------------------------------------------------------------------------|
| updated_at | String | Specifies the time when the listener was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |

**Table 7-62 loadbalancers** parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

## Example Request

- Example request: Updating a listener

```
PUT https://{Endpoint}/v2.0/lbaas/listeners/f622c150-72f5-4263-a47a-e5003c652aa3
```

```
{
  "listener": {
    "description": "my listener",
    "name": "listener-jy-test2",
    "default_pool_id": "c61310de-9a06-4f0c-850c-6f4797b9984c",
    "default_tls_container_ref": "23b58a961a4d4c95be585e98046e657a",
    "client_ca_tls_container_ref": "417a0976969f497db8cbb083bff343ba"
  }
}
```

## Example Response

- Example response

```
{
  "listener": {
    "client_ca_tls_container_ref": "417a0976969f497db8cbb083bff343ba",
    "protocol": "TERMINATED_HTTPS",
    "description": "my listener",
    "default_tls_container_ref": "23b58a961a4d4c95be585e98046e657a",
    "admin_state_up": true,
    "http2_enable": false,
    "loadbalancers": [
      {
        "id": "165b6a38-5278-4569-b747-b2ee65ea84a4"
      }
    ],
    "tenant_id": "601240b9c5c94059b63d484c92cfe308",

    "sni_container_refs": [],
    "connection_limit": -1,
    "protocol_port": 443,
    "tags": [],
    "default_pool_id": "c61310de-9a06-4f0c-850c-6f4797b9984c",
    "id": "f622c150-72f5-4263-a47a-e5003c652aa3",
    "name": "listener-jy-test2",

    "created_at": "2018-07-25T01:54:13",
    "updated_at": "2018-07-25T01:54:14"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.2.5 Deleting a Listener

### Function

This API is used to delete a listener by ID.

### URI

DELETE /v2.0/lbaas/listeners/{listener\_id}

**Table 7-63** Parameter description

| Parameter   | Mandatory | Type   | Description                |
|-------------|-----------|--------|----------------------------|
| listener_id | Yes       | String | Specifies the listener ID. |

### Request

None

### Response

None

### Example Request

- Example request: Deleting a listener  
DELETE https://{Endpoint}/v2.0/lbaas/listeners/35cb8516-1173-4035-8dae-0dae3453f37f

### Example Response

- Example response  
None

### Status Code

For details, see [Status Codes](#).

## 7.3 Backend Server Group

### 7.3.1 Adding a Backend Server Group

#### Function

This API is used to add a backend server group. After multiple backend servers are added to a backend server group, requests are distributed among backend servers

based on the load balancing algorithm configured for the backend server group and the weight set for each backend server.

## Constraints

- If parameter **session-persistence** is configured, parameter **cookie\_name** is available only when the value of **type** is **APP\_COOKIE**.

## URI

POST /v2.0/lbaas/pools

## Request

**Table 7-64** Parameter description

| Parameter | Mandatory | Type   | Description                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Yes       | Object | Specifies the backend server group. For details, see <a href="#">Table 7-65</a> . |

**Table 7-65** pool parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                      |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id   | No        | String | Specifies the ID of the project where the backend server group is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters. |
| name        | No        | String | Specifies the name of the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                                           |
| description | No        | String | Provides supplementary information about the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                        |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol       | Yes       | String  | <p>Specifies the protocol that the backend server group uses to receive requests.</p> <p>TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| lb_algorithm   | Yes       | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> <p>When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</p>                                                                                                                                                                                                                                                                   |
| admin_state_up | No        | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved, and the default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Parameter           | Mandatory | Type   | Description                                                                                                                                                                      |
|---------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| listener_id         | No        | String | Specifies the ID of the listener associated with the backend server group.<br>Specify either <b>listener_id</b> or <b>loadbalancer_id</b> , or both of them.                     |
| loadbalancer_id     | No        | String | Specifies the ID of the load balancer associated with the backend server group.<br>Specify either <b>listener_id</b> or <b>loadbalancer_id</b> , or both of them.                |
| session_persistence | No        | Object | Specifies the sticky session timeout duration in minutes. For details, see <a href="#">Table 7-66</a> .<br>If the value is <b>null</b> , the sticky session feature is disabled. |

**Table 7-66 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>● <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li><li>● <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li><li>● <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li></ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>• When the protocol of the backend server group is HTTP or HTTPS, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> |

## Response

**Table 7-67** Response parameters

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 7-68</a> . |

**Table 7-68** pools parameter description

| Parameter   | Type   | Description                                                                                                                           |
|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                                         |
| tenant_id   | String | <p>Specifies the ID of the project where the backend server group is used.</p> <p>The value contains a maximum of 255 characters.</p> |
| name        | String | <p>Specifies the name of the backend server group.</p> <p>The value contains a maximum of 255 characters.</p>                         |
| description | String | <p>Provides supplementary information about the backend server group.</p> <p>The value contains a maximum of 255 characters.</p>      |



| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol         | String  | <p>Specifies the protocol that the backend server group uses to receive requests.</p> <p>TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"><li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li><li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li><li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li></ul> |
| lb_algorithm     | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li><li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li><li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li></ul>                                                                                                                                                                                                                                                                          |
| members          | Array   | <p>Lists the IDs of backend servers in the backend server group.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| healthmonitor_id | String  | <p>Specifies the ID of the health check configured for the backend server group.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| admin_state_up   | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The value can be <b>true</b> or <b>false</b>.</p> <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| listeners        | Array   | <p>Lists the IDs of listeners associated with the backend server group.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| loadbalancers    | Array   | <p>Lists the IDs of load balancers associated with the backend server group.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                           |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| session_persistence | Object | Specifies whether to enable sticky sessions. For details, see <a href="#">Table 7-72</a> .<br>Once sticky session are enabled, requests from the same client are sent to the same backend server during the session.<br>When sticky sessions are disabled, the value is <b>null</b> . |

**Table 7-69 members** parameter description

| Parameter | Type   | Description                                        |
|-----------|--------|----------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server. |

**Table 7-70 listeners** parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

**Table 7-71 loadbalancers** parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

**Table 7-72 session\_persistence** parameter description

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type                | String  | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li><li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li><li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li></ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name         | String  | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| persistence_timeout | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <ul style="list-style-type: none"><li>• Optional value ranges are as follows:<ul style="list-style-type: none"><li>- When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li><li>- When the protocol of the backend server group is HTTP or HTTPS, the value ranges from <b>1</b> to <b>1440</b>.</li></ul></li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## Example Request

- Example request 1: Adding a backend server group with the sticky session feature disabled

```
POST https://{Endpoint}/v2.0/lbaas/pools
```

```
{
  "pool": {
    "lb_algorithm": "ROUND_ROBIN",
    "loadbalancer_id": "63ad9dfe-4750-479f-9630-ada43ccc8117",
```

```
    "protocol": "HTTP"
  }
}
```

- Example request 2: Adding an HTTP backend server group with the value of **type** set to **APP\_COOKIE**

POST https://{Endpoint}/v2.0/lbaas/pools

```
{
  "pool": {
    "lb_algorithm": "ROUND_ROBIN",
    "listener_id": "370fb112-e920-486a-b051-1d0d30704dd3",
    "protocol": "HTTP",
    "session_persistence": {
      "cookie_name": "my_cookie",
      "type": "APP_COOKIE",
      "persistence_timeout": 1
    },
    "admin_state_up": true
  }
}
```

- Example request 3: Adding an HTTP backend server group with the value of **type** set to **HTTP\_COOKIE**

POST https://{Endpoint}/v2.0/lbaas/pools

```
{
  "pool": {
    "lb_algorithm": "ROUND_ROBIN",
    "loadbalancer_id": "63ad9dfe-4750-479f-9630-ada43ccc8117",
    "protocol": "HTTP",
    "session_persistence": {
      "type": "HTTP_COOKIE"
    }
  }
}
```

## Example Response

- Example response 1

```
{
  "pool": {
    "lb_algorithm": "ROUND_ROBIN",
    "protocol": "HTTP",
    "description": "",
    "admin_state_up": true,
    "loadbalancers": [
      {
        "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
      }
    ],
    "tenant_id": "601240b9c5c94059b63d484c92cfe308",
    "session_persistence": null,
    "healthmonitor_id": null,
    "listeners": [],
    "members": [],
    "id": "4e496951-befb-47bf-9573-c1cd11825c07",
    "name": ""
  }
}
```

- Example response 2

```
{
  "pool": {
    "lb_algorithm": "ROUND_ROBIN",
    "protocol": "HTTP",
    "description": "",
    "admin_state_up": true,

```

```
"loadbalancers": [
  {
    "id": "6b041b9e-976b-40ba-b075-375be6110b53"
  }
],
"tenant_id": "145483a5107745e9b3d80f956713e6a3",

"session_persistence": {
  "cookie_name": "my_cookie",
  "type": "APP_COOKIE",
  "persistence_timeout": 1
},
"healthmonitor_id": null,
"listeners": [
  {
    "id": "370fb112-e920-486a-b051-1d0d30704dd3"
  }
],
"members": [

],
"id": "307f8968-9474-4d0c-8434-66be09dabcc1",
"name": ""
}
}
```

- Example response 3

```
{
  "pool": {
    "lb_algorithm": "ROUND_ROBIN",
    "protocol": "HTTP",
    "description": "",
    "admin_state_up": true,
    "loadbalancers": [
      {
        "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
      }
    ],
    "tenant_id": "601240b9c5c94059b63d484c92cfe308",
    "session_persistence": {
      "persistence_timeout": 1440,
      "cookie_name": null,
      "type": "HTTP_COOKIE"
    },
    "healthmonitor_id": null,
    "listeners": [],
    "members": [],
    "id": "d46eab56-d76b-4cd3-8952-3c3c4cf113aa",
    "name": ""
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.3.2 Querying Backend Server Groups

### Function

This API is used to query the backend server groups and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

## Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

## URI

GET /v2.0/lbaas/pools

## Request

**Table 7-73** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the backend server group from which pagination query starts, that is, the ID of the last backend server group on the previous page. If this parameter is not specified, the first page will be queried.<br><br>This parameter must be used together with <b>limit</b> .                                                                                                                                       |
| limit        | No        | Integer | Specifies the number of backend server groups on each page.                                                                                                                                                                                                                                                                                                                                                                       |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                     |
| tenant_id    | No        | String  | Specifies the ID of the project where the backend server group is used.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                    |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| description      | No        | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| healthmonitor_id | No        | String | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| loadbalancer_id  | No        | String | Specifies the ID of the load balancer associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| protocol         | No        | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| lb_algorithm     | No        | String | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li><li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li><li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li></ul> When the value is <b>SOURCE_IP</b> , the weights of backend servers in the server group are invalid. For details about parameter <b>weight</b> , see <a href="#">Table 7-110</a> . |
| member_address   | No        | String | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| member_device_id | No        | String | Specifies the ID of the cloud server used as the backend server in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## Response

**Table 7-74** Response parameters

| Parameter   | Type  | Description                                                                                                                                                                                              |
|-------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pools       | Array | Specifies the backend server group. For details, see <a href="#">Table 7-75</a> .                                                                                                                        |
| pools_links | List  | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 7-80</a> . |

**Table 7-75** pools parameter description

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id           | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| tenant_id    | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                         |
| name         | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                 |
| description  | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                              |
| protocol     | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.                                                                                                                                                                                                                                                                                                                                                                                |
| lb_algorithm | String | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li><li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li><li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li></ul> When the value is <b>SOURCE_IP</b> , the weights of backend servers in the server group are invalid. |
| members      | Array  | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                      |



| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                      |
|---------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| healthmonitor_id    | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                    |
| admin_state_up      | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>                                           |
| listeners           | Array   | Lists the IDs of listeners associated with the backend server group.                                                                                                                                                                                                                             |
| loadbalancers       | String  | Lists the IDs of load balancers associated with the backend server group.                                                                                                                                                                                                                        |
| session_persistence | Object  | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 7-79</a> .<br>Once sticky session are enabled, requests from the same client are sent to the same backend server during the session.<br>When sticky sessions are disabled, the value is <b>null</b> . |

**Table 7-76 members** parameter description

| Parameter | Type   | Description                                        |
|-----------|--------|----------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server. |

**Table 7-77 listeners** parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

**Table 7-78 loadbalancers** parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

**Table 7-79 session\_persistence** parameter description

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type                | String  | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name         | String  | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| persistence_timeout | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <ul style="list-style-type: none"> <li>• Optional value ranges are as follows: <ul style="list-style-type: none"> <li>- When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>- When the protocol of the backend server group is HTTP or HTTPS, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

**Table 7-80 pools\_links** parameter description

| Parameter | Type   | Description                                                                        |
|-----------|--------|------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively. |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rel       | String | Specifies the prompt of the previous or next page. The value can be <b>next</b> or <b>previous</b> . <ul style="list-style-type: none"> <li>• <b>next</b>: indicates the URL of the next page.</li> <li>• <b>previous</b>: indicates the URL of the previous page.</li> </ul> |

## Example Request

- Example request 1: Querying backend server groups by pages  
GET https://{Endpoint}/v2.0/lbaas/pools?limit=2
- Example request 2: Querying backend server groups whose load balancing algorithm is **SOURCE\_IP**  
GET https://{Endpoint}/v2.0/lbaas/pools?lb\_algorithm=SOURCE\_IP

## Example Response

- Example response 1

```

{
  "pools": [
    {
      "lb_algorithm": "SOURCE_IP",
      "protocol": "TCP",
      "description": "",
      "admin_state_up": true,
      "loadbalancers": [
        {
          "id": "07d28d4a-4899-40a3-a939-5d09d69019e1"
        }
      ],
      "tenant_id": "1867112d054b427e808cc6096d8193a1",
      "session_persistence": null,
      "healthmonitor_id": null,
      "listeners": [
        {
          "id": "1b421c2d-7e78-4a78-9ee4-c8ccba41f15b"
        }
      ],
      "members": [
        {
          "id": "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
        },
        {
          "id": "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
        }
      ],
      "id": "3a9f50bb-f041-4eac-a117-82472d8a0007",
      "name": "my-pool"
    }
  ],
  "pools_links": [
    {
      "href": "https://{Endpoint}/v2.0/lbaas/pools?limit=2&marker=0469a5ad-6233-4669-8d38-5920f2bd95b6",
      "rel": "next"
    },
    {
      "href": "https://{Endpoint}/v2.0/lbaas/pools?limit=2&marker=02d43e35-e874-4139-bdba-d65609db20ab&page_reverse=True",
      "rel": "previous"
    }
  ]
}

```

```
    ]
  }
}

```

- Example response 2

```
{
  "pools": [
    {
      "lb_algorithm": "SOURCE_IP",
      "protocol": "TCP",
      "description": "",
      "admin_state_up": true,
      "loadbalancers": [
        {
          "id": "07d28d4a-4899-40a3-a939-5d09d69019e1"
        }
      ],
      "tenant_id": "1867112d054b427e808cc6096d8193a1",
      "session_persistence": null,
      "healthmonitor_id": null,
      "listeners": [
        {
          "id": "1b421c2d-7e78-4a78-9ee4-c8ccba41f15b"
        }
      ],
      "members": [
        {
          "id": "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
        },
        {
          "id": "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
        }
      ],
      "id": "3a9f50bb-f041-4eac-a117-82472d8a0007",
      "name": "my-pool"
    }
  ]
}
```

## Status Code

For details, see [Status Codes](#).

## 7.3.3 Querying Details of a Backend Server Group

### Function

This API is used to query details about a backend server group using its ID.

### URI

GET /v2.0/lbaas/pools/{pool\_id}

**Table 7-81** Parameter description

| Parameter | Mandator<br>y | Type   | Description                                   |
|-----------|---------------|--------|-----------------------------------------------|
| pool_id   | Yes           | String | Specifies the ID of the backend server group. |

## Request

None

## Response

**Table 7-82** Response parameters

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 7-83</a> . |

**Table 7-83** pools parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| protocol    | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.<br>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows: <ul style="list-style-type: none"><li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li><li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li><li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li></ul> |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm        | String  | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li><li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li><li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li></ul> |
| members             | Array   | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| healthmonitor_id    | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| admin_state_up      | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                            |
| listeners           | Array   | Lists the IDs of listeners associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| loadbalancers       | Array   | Lists the IDs of load balancers associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| session_persistence | Object  | Specifies whether to enable sticky sessions. For details, see <a href="#">Table 7-72</a> .<br>Once sticky session are enabled, requests from the same client are sent to the same backend server during the session.<br>When sticky sessions are disabled, the value is <b>null</b> .                                                                                                                                                                                                             |

**Table 7-84** members parameter description

| Parameter | Type   | Description                                        |
|-----------|--------|----------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server. |

**Table 7-85 listeners** parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

**Table 7-86 loadbalancers** parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

**Table 7-87 session\_persistence** parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | String | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li><li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li><li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li></ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Parameter               | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistenc<br>e_timeout | Integer | Specifies the sticky session timeout duration in minutes.<br><br>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b> . <ul style="list-style-type: none"><li>Optional value ranges are as follows:<ul style="list-style-type: none"><li>When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li><li>When the protocol of the backend server group is HTTP or HTTPS, the value ranges from <b>1</b> to <b>1440</b>.</li></ul></li></ul> |

## Example Request

- Example request: Querying details of a backend server group  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332

## Example Response

- Example response

```
{
  "pool": {
    "lb_algorithm": "SOURCE_IP",
    "protocol": "TCP",
    "description": "",
    "admin_state_up": true,
    "loadbalancers": [
      {
        "id": "6f52004c-3fe9-4c09-b8ce-ed9d9c74a3b1"
      }
    ],
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "session_persistence": null,
    "healthmonitor_id": null,
    "listeners": [
      {
        "id": "6e29b2cd-4e53-40f6-ae7b-29e918de67f2"
      }
    ],
    "members": [],
    "id": "5a9a3e9e-d1aa-448e-af37-a70171f2a332",
    "name": "my-pool"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.3.4 Updating a Backend Server Group

### Function

This API is used to update a backend server group.



## Constraints

If the provisioning status of the load balancer associated with a backend server group is not **ACTIVE**, the backend server group cannot be updated.

## URI

PUT /v2.0/lbaas/pools/{pool\_id}

**Table 7-88** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

## Request

**Table 7-89** Parameter description

| Parameter | Mandatory | Type   | Description                                                                          |
|-----------|-----------|--------|--------------------------------------------------------------------------------------|
| pool      | Yes       | Object | Specifies the backend server group.<br>For details, see <a href="#">Table 7-90</a> . |

**Table 7-90** pool parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                           |
|-------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------|
| name        | No        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                    |
| description | No        | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters. |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm        | No        | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>Value options:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> <p>When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</p> |
| admin_state_up      | No        | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved, and the default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                |
| session_persistence | No        | Object  | <p>Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 7-97</a>.</p> <p>Once sticky session are enabled, requests from the same client are sent to the same backend server during the session.</p> <p>When sticky sessions are disabled, the value is <b>null</b>.</p>                                                                                                                                                                                   |

**Table 7-91 session\_persistence** parameter description

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type                | No        | String  | <p>Specifies the sticky session type.</p> <p>Value options:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> <li>• When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</li> </ul> |
| cookie_name         | No        | String  | <p>Specifies the cookie name.</p> <p>This parameter is mandatory and can be specified when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>Value range options are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>• When the protocol of the backend server group is HTTP or HTTPS, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## Response

**Table 7-92** Parameter description

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 7-93</a> . |

**Table 7-93** pools parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| protocol    | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.<br>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows: <ul style="list-style-type: none"><li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li><li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li><li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li></ul> |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm        | String  | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li><li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li><li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li></ul> |
| members             | Array   | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| healthmonitor_id    | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| admin_state_up      | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                            |
| listeners           | Array   | Lists the IDs of listeners associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| loadbalancers       | Array   | Lists the IDs of load balancers associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| session_persistence | Object  | Specifies whether to enable sticky sessions. For details, see <a href="#">Table 7-72</a> .<br>Once sticky session are enabled, requests from the same client are sent to the same backend server during the session.<br>When sticky sessions are disabled, the value is <b>null</b> .                                                                                                                                                                                                             |

**Table 7-94** members parameter description

| Parameter | Type   | Description                                        |
|-----------|--------|----------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server. |

**Table 7-95 listeners** parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

**Table 7-96 loadbalancers** parameter description

| Parameter | Type   | Description                                       |
|-----------|--------|---------------------------------------------------|
| id        | String | Specifies the ID of the associated load balancer. |

**Table 7-97 session\_persistence** parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | String | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li><li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li><li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li></ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Parameter               | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistenc<br>e_timeout | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <ul style="list-style-type: none"><li>Optional value ranges are as follows:<ul style="list-style-type: none"><li>When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li><li>When the protocol of the backend server group is HTTP or HTTPS, the value ranges from <b>1</b> to <b>1440</b>.</li></ul></li></ul> |

## Example Request

- Example request 1: Updating a backend server group

PUT <https://{Endpoint}/v2.0/lbaas/pools/12ff63af-4127-4074-a251-bcb2ecc53ebe>

```
{
  "pool": {
    "name": "pool2",
    "description": "pool two",
    "lb_algorithm": "LEAST_CONNECTIONS"
  }
}
```

- Example request 2: Disabling the sticky session feature of a backend server group

PUT <https://{Endpoint}/v2.0/lbaas/pools/d46eab56-d76b-4cd3-8952-3c3c4cf113aa>

```
{
  "pool": {
    "session_persistence": null
  }
}
```

## Example Response

- Example response 1

```
{
  "pool": {
    "lb_algorithm": "LEAST_CONNECTIONS",
    "protocol": "HTTP",
    "description": "pool two",
    "loadbalancers": [
      {
        "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
      }
    ],
    "admin_state_up": true,
    "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",
    "session_persistence": {
      "cookie_name": null,
      "type": "HTTP_COOKIE",
      "persistence_timeout": 1
    },
    "healthmonitor_id": null,
    "listeners": [
```

```
    {
      "id": "39de4d56-d663-46e5-85a1-5b9d5fa17829"
    }
  ],
  "members": [],
  "id": "12ff63af-4127-4074-a251-bcb2ecc53ebe",
  "name": "pool2"
}
}
```

- Example response 2

```
{
  "pool": {
    "lb_algorithm": "ROUND_ROBIN",
    "protocol": "HTTP",
    "description": "",
    "admin_state_up": true,
    "loadbalancers": [
      {
        "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
      }
    ],
    "tenant_id": "601240b9c5c94059b63d484c92cfe308",
    "session_persistence": null,
    "healthmonitor_id": null,
    "listeners": [],
    "members": [],
    "id": "d46eab56-d76b-4cd3-8952-3c3c4cf113aa",
    "name": ""
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.3.5 Deleting a Backend Server Group

### Function

This API is used to delete a backend server group.

### Constraints

Before deleting a backend server group, remove all backend servers, delete the health check, and disassociate forwarding policies from the backend server group by changing the value of **redirect\_pool\_id** to **null**. For details, see [Updating a Forwarding Policy](#).

### URI

DELETE /v2.0/lbaas/pools/{pool\_id}

**Table 7-98** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |



## Request

None

## Response

None

## Example Request

- Example request: Deleting a backend server group  
DELETE /v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332

## Example Response

- Example response  
None

## Status Code

For details, see [Status Codes](#).

# 7.4 Backend Server

## 7.4.1 Adding a Backend Server

### Function

This API is used to add a backend server to a specific backend server group. After a backend server group is added to a listener, traffic is distributed to backend servers in this server group using the specified load balancing algorithm.

### Constraints

Two backend servers in a backend server group cannot have the same private IP address or port number.

The subnet specified during server creation must be in the same VPC as the subnet from which the private IP address of the load balancer is assigned.

### URI

POST /v2.0/lbaas/pools/{pool\_id}/members

**Table 7-99** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

## Request

**Table 7-100** Parameter description

| Parameter | Mandatory | Type   | Description                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------|
| member    | Yes       | Object | Specifies the backend server. For details, see <a href="#">Table 7-101</a> . |

**Table 7-101 member** parameter description

| Parameter       | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                |
|-----------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id       | No        | String  | Specifies the ID of the project where the backend server is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                                                 |
| name            | No        | String  | Specifies the backend server name. The value is an empty character string by default.<br><br>The value contains a maximum of 255 characters.                                                                                                                                               |
| address         | Yes       | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br><br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br><br>The value contains a maximum of 64 characters. |
| protocol_port   | Yes       | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                     |
| subnet_id       | Yes       | String  | Specifies the ID of the subnet where the backend server works.<br><br>The private IP address of the backend server is in this subnet.<br><br>Only IPv4 subnets are supported.                                                                                                              |
| admin_status_up | No        | Boolean | Specifies the administrative status of the backend server.<br><br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                       |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                        |
|-----------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| weight    | No        | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> . |

## Response

**Table 7-102** Response parameters

| Parameter | Type   | Description                                                                  |
|-----------|--------|------------------------------------------------------------------------------|
| member    | Object | Specifies the backend server. For details, see <a href="#">Table 7-103</a> . |

**Table 7-103** member parameter description

| Parameter     | Type    | Description                                                                                                                                                                                                                                                                        |
|---------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id            | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.                                                                             |
| tenant_id     | String  | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                               |
| name          | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                              |
| address       | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters. |
| protocol_port | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                             |
| subnet_id     | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br>IPv6 subnets are not supported.                                                                                                                  |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up   | Boolean | Specifies the administrative status of the backend server. This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>                                                                                                                                                                                            |
| weight           | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                                                       |
| operating_status | String  | Specifies the health check result of the backend server. The value can be one of the following: <ul style="list-style-type: none"><li>• <b>ONLINE</b>: The backend server is running normally.</li><li>• <b>NO_MONITOR</b>: No health check is configured for the backend server group that the backend server belongs to.</li><li>• <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul> |

## Example Request

- Step 1: Query the subnet ID and IP address using the server ID. **device\_id** in the request indicates the server ID. Obtain the values of **subnet\_id** and **ip\_address** of the primary NIC (the port for which **primary\_interface** is **true**) in the response body.

```
GET https://{VPCEndpoint}/v2.0/ports?device_id=f738c464-b5c2-45df-86c0-7f436620cd54
```

### Example response

```
{
  "ports": [
    {
      "id": "94971c39-46f0-443a-85e8-31cb7497c78e",
      "name": "",
      "status": "ACTIVE",
      "admin_state_up": true,
      "fixed_ips": [
        {
          "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
          "ip_address": "192.168.44.11"
        }
      ],
      "mac_address": "fa:16:3e:5c:d2:57",
      "network_id": "1b76b9c2-9b7e-4ced-81bd-d13f7389d7c9",
      "tenant_id": "04dd36f978800fe22f9bc00bea090736",
      "project_id": "04dd36f978800fe22f9bc00bea090736",
      "device_id": "f738c464-b5c2-45df-86c0-7f436620cd54",
      "device_owner": "compute:xx-xxxx-4a",
      "security_groups": [
        "a10dfc31-0055-4b84-b36e-1291b918125c",
        "7a233393-5be2-4dff-8360-1558dd950f6e"
      ],
      "extra_dhcp_opts": [],
      "allowed_address_pairs": []
    }
  ]
}
```

```
"binding:vnic_type": "normal",
"binding:vif_details": {
  "primary_interface": true
},
"binding:profile": {},
"port_security_enabled": true,
"created_at": "2019-11-12T17:17:51",
"updated_at": "2019-11-12T17:17:51"
}
]
```

- Step 2: Use the subnet ID and IP address obtained in [Step 1](#) to add a backend server.

POST https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members

```
{
  "member": {
    "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
    "protocol_port": 88,
    "name": "member-jy-tt-1",
    "address": "192.168.44.11"
  }
}
```

## Example Response

- Example response

```
{
  "member": {
    "name": "member-jy-tt-1",
    "weight": 1,
    "admin_state_up": true,
    "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",

    "address": "192.168.44.11",
    "protocol_port": 88,
    "operating_status": "ONLINE",
    "id": "c0042496-e220-44f6-914b-e6ca33bab503"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.4.2 Querying Backend Servers

### Function

This API is used to query backend servers in a specific backend server group. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

## URI

GET /v2.0/lbaas/pools/{pool\_id}/members

**Table 7-104** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

## Request

**Table 7-105** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the backend server from which pagination query starts, that is, the ID of the last backend server on the previous page. If this parameter is not specified, the first page will be queried.<br><br>This parameter must be used together with <b>limit</b> .                                                                                                                                                   |
| limit        | No        | Integer | Specifies the number of backend servers on each page. If this parameter is not set, all backend servers are queried by default.                                                                                                                                                                                                                                                                                                   |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.                                                                                                                                                                                                                            |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                     |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                            |
| name           | No        | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.<br><b>NOTE</b><br>The value of this parameter is not the name of server. It is the name automatically generated for the backend server associated with the load balancer. |
| address        | No        | String  | Specifies the private IP address of the backend server.<br>The value contains a maximum of 64 characters.                                                                                                                                                       |
| protocol_port  | No        | Integer | Specifies the port used by the backend server.                                                                                                                                                                                                                  |
| subnet_id      | No        | String  | Specifies the ID of the subnet where the backend server works.                                                                                                                                                                                                  |
| admin_state_up | No        | Boolean | Specifies the administrative status of the backend server.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                |
| weight         | No        | Integer | Specifies the backend server weight.                                                                                                                                                                                                                            |

## Response

**Table 7-106** Response parameters

| Parameter     | Type  | Description                                                                                                                                                                                               |
|---------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| members       | Array | Lists the backend servers in the backend server group. For details, see <a href="#">Table 7-107</a> .                                                                                                     |
| members_links | Array | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 7-108</a> . |

**Table 7-107 members** parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                        |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.                                                                             |
| tenant_id        | String  | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                               |
| name             | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                              |
| address          | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters. |
| protocol_port    | Integer | Specifies the port used by the backend server.<br>The port number ranges from 1 to 65535.                                                                                                                                                                                          |
| subnet_id        | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br>IPv6 subnets are not supported.                                                                                                                  |
| admin_state_up   | Boolean | Specifies the administrative status of the backend server.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                   |
| weight           | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                 |
| operating_status | String  | Specifies the operating status of the load balancer. This parameter is reserved, and its value can be <b>ONLINE</b> or <b>FROZEN</b> .                                                                                                                                             |



**Table 7-108** members\_links parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                                |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                         |
| rel       | String | Specifies the prompt of the previous or next page. The value can be <b>next</b> or <b>previous</b> . <ul style="list-style-type: none"><li>• <b>next</b>: indicates the URL of the next page.</li><li>• <b>previous</b>: indicates the URL of the previous page.</li></ul> |

## Example Request

- Example request 1: Querying all backend servers  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members
- Example request 2: Querying the backend cloud server whose IP address is 10.0.0.8 and port number is 80  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members?address=10.0.0.8&protocol\_port=80

## Example Response

- Example response 1

```
{
  "members": [
    {
      "address": "10.0.0.8",
      "admin_state_up": true,
      "id": "9a7aff27-fd41-4ec1-ba4c-3eb92c629313",
      "protocol_port": 80,
      "subnet_id": "013d3059-87a4-45a5-91e9-d721068ae0b2",
      "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",
      "weight": 1,
      "operating_status": "ONLINE",
      "name": "member-name"
    }
  ]
}
```

- Example response 2

```
{
  "members": [
    {
      "address": "10.0.0.8",
      "admin_state_up": true,
      "id": "9a7aff27-fd41-4ec1-ba4c-3eb92c629313",
      "protocol_port": 80,
      "subnet_id": "013d3059-87a4-45a5-91e9-d721068ae0b2",
      "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",

      "weight": 1,
      "operating_status": "ONLINE",
      "name": "member-name"
    }
  ]
}
```

## Status Code

For details, see [Status Codes](#).

## 7.4.3 Querying Details of a Backend Server

### Function

This API is used to query details about a backend server.

### URI

GET /v2.0/lbaas/pools/{pool\_id}/members/{member\_id}

**Table 7-109** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                     |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                   |
| member_id | Yes       | String | Specifies the backend server ID.<br><b>NOTE</b> <ul style="list-style-type: none"><li>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.</li><li>You can obtain this value by calling the API described in <a href="#">Querying Backend Servers</a>.</li></ul> |

### Request

None

### Response

**Table 7-110** Response parameters

| Parameter | Type   | Description                                                               |
|-----------|--------|---------------------------------------------------------------------------|
| member    | Object | Lists the backend servers. For details, see <a href="#">Table 7-111</a> . |

**Table 7-111 member** parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.                                                                                                                                                                                                                                   |
| tenant_id        | String  | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                     |
| name             | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                    |
| address          | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters.                                                                                                                                                       |
| protocol_port    | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                                                                                                                                   |
| subnet_id        | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br>IPv6 subnets are not supported.                                                                                                                                                                                                                                                                        |
| admin_status_up  | Boolean | Specifies the administrative status of the backend server. This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                                                                                                                                                                            |
| weight           | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                                                       |
| operating_status | String  | Specifies the health check result of the backend server. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The backend server is running normally.</li><li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group that the backend server belongs to.</li><li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul> |

## Example Request

- Example request: Querying details of a backend server  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/  
cf024846-7516-4e3a-b0fb-6590322c836f

## Example Response

- Example response

```
{
  "member": {
    "name": "",
    "weight": 1,
    "admin_state_up": true,
    "subnet_id": "823d5866-6e30-45c2-9b1a-a1ebc3757fdb",
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",

    "address": "192.172.3.100",
    "protocol_port": 8080,
    "operating_status": "ONLINE",
    "id": "e58f5bfa-0e46-4bc5-951c-8473d3e5f24a"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.4.4 Updating a Backend Server

### Function

This API is used to update a backend server. You can modify its name and weight. You can set a larger weight for backend servers that can receive more traffic.

### Constraints

If the provisioning status of the associated load balancer is not **ACTIVE**, the backend server cannot be updated.

### URI

PUT /v2.0/lbaas/pools/{pool\_id}/members/{member\_id}

**Table 7-112** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                        |
|-----------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| member_id | Yes       | String | Specifies the backend server ID.<br><b>NOTE</b> <ul style="list-style-type: none"> <li>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.</li> <li>You can obtain this value by calling the API described in <a href="#">Querying Backend Servers</a>.</li> </ul> |

## Request

**Table 7-113** Parameter description

| Parameter | Mandatory | Type   | Description                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------|
| member    | Yes       | Object | Specifies the backend server. For details, see <a href="#">Table 7-114</a> . |

**Table 7-114** member parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                     |
|----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name           | No        | String  | Specifies the backend server name. The value contains a maximum of 255 characters.                                                                                                              |
| admin_state_up | No        | Boolean | Specifies the administrative status of the backend server. This parameter is reserved, and the default value is <b>true</b> .                                                                   |
| weight         | No        | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> . If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> . |

## Response

**Table 7-115** Response parameters

| Parameter | Type   | Description                                                                  |
|-----------|--------|------------------------------------------------------------------------------|
| member    | Object | Specifies the backend server. For details, see <a href="#">Table 7-116</a> . |

**Table 7-116** member parameter description

| Parameter       | Type    | Description                                                                                                                                                                                                                                                                        |
|-----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id              | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.                                                                             |
| tenant_id       | String  | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                               |
| name            | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                              |
| address         | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters. |
| protocol_port   | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                             |
| subnet_id       | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br>IPv6 subnets are not supported.                                                                                                                  |
| admin_status_up | Boolean | Specifies the administrative status of the backend server. This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                      |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| weight           | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                                                       |
| operating_status | String  | Specifies the health check result of the backend server. The value can be one of the following: <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The backend server is running normally.</li><li>● <b>NO_MONITOR</b>: No health check is configured for the backend server group that the backend server belongs to.</li><li>● <b>OFFLINE</b>: The cloud server used as the backend server is stopped or does not exist.</li></ul> |

## Example Request

- Example request: Updating the name and weight of a backend server  
PUT [https://\[Endpoint\]/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/c0042496-e220-44f6-914b-e6ca33bab503](https://[Endpoint]/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/c0042496-e220-44f6-914b-e6ca33bab503)

```
{
  "member": {
    "name": "member create test",
    "weight": 10
  }
}
```

## Example Response

- Example response

```
{
  "member": {
    "name": "member-jy-tt-1",
    "weight": 1,
    "admin_state_up": true,
    "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",
    "address": "192.168.44.11",
    "protocol_port": 88,
    "operating_status": "ONLINE",
    "id": "c0042496-e220-44f6-914b-e6ca33bab503"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.4.5 Removing a Backend Server

### Function

This API is used to remove a backend server by its ID.

## Constraints

After you remove a backend server, new connections to this server will not be established. However, long connections that have been established will be maintained.

## URI

DELETE /v2.0/lbaas/pools/{pool\_id}/members/{member\_id}

**Table 7-117** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                     |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                   |
| member_id | Yes       | String | Specifies the backend server ID.<br><b>NOTE</b> <ul style="list-style-type: none"><li>The value of this parameter is not the ID of server. It is the ID automatically generated for the backend server associated with the load balancer.</li><li>You can obtain this value by calling the API described in <a href="#">Querying Backend Servers</a>.</li></ul> |

## Request

None

## Response

None

## Example Request

- Example request: Removing a backend server  
DELETE https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/cf024846-7516-4e3a-b0fb-6590322c836f

## Example Response

- Example response  
None

## Status Code

For details, see [Status Codes](#).

## 7.5 Health Check



## 7.5.1 Configuring a Health Check

### Function

This API is used to configure a health check for a backend server group to check the status of backend servers. If the health check result is **OFFLINE**, backend servers are considered unhealthy. You need to check the server configuration.

### Constraints

The security group must allow access from 100.125.0.0/16. Otherwise, the health check cannot be performed.

### URI

POST /v2.0/lbaas/healthmonitors

### Request

**Table 7-118** Parameter description

| Parameter     | Mandatory | Type   | Description                                                                |
|---------------|-----------|--------|----------------------------------------------------------------------------|
| healthmonitor | Yes       | Object | Specifies the health check. For details, see <a href="#">Table 7-119</a> . |

**Table 7-119** healthmonitor parameter description

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                               |
|-----------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id | No        | String  | Specifies the ID of the project where the health check is performed.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br>The value contains a maximum of 255 characters. |
| name      | No        | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                       |
| delay     | Yes       | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                     |

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_retries      | Yes       | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| max_retries_down | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| pool_id          | Yes       | String  | Specifies the ID of the backend server group.<br>Only one health check can be configured for each backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| admin_state_up   | No        | Boolean | Specifies the administrative status of the health check.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| timeout          | Yes       | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                                                                                                                                                                                                                                                          |
| type             | Yes       | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .<br>The relationships between the health check protocol and the protocol used by the backend server group are as follows: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li><li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li><li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li></ul> |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| monitor_port   | No        | Integer | <p>Specifies the health check port. The port number ranges from 1 to 65535.</p> <p>The value is left blank by default, indicating that the port of the backend server is used as the health check port.</p>                                                                                                                                                                                                                                                                                                                                     |
| domain_name    | No        | String  | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> <p>The value contains a maximum of 100 characters.</p> |
| url_path       | No        | String  | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 80 characters.</p>                                                                                                                                                                                                                         |
| expected_codes | No        | String  | <p>Specifies the expected HTTP status code. The following options are available:</p> <ul style="list-style-type: none"><li>A single value, such as <b>200</b></li><li>A list of values, such as <b>200,202</b></li><li>A value range, such as <b>200-204</b></li></ul> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 64 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                        |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                            |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| http_method | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |

## Response

**Table 7-120** Response parameters

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 7-121</a> . |

**Table 7-121** healthmonitor parameter description

| Parameter        | Type    | Description                                                                                                                                                                                     |
|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the health check ID.                                                                                                                                                                  |
| tenant_id        | String  | Specifies the ID of the project where the health check is performed.                                                                                                                            |
| name             | String  | Specifies the health check name.                                                                                                                                                                |
| delay            | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                           |
| max_retries      | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> . |
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> . |
| pools            | Array   | Specifies the ID of the backend server group associated with the health check. For details, see <a href="#">Table 7-122</a> .                                                                   |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | Boolean | Specifies the administrative status of the health check.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                                                                                                                                                       |
| timeout        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                                                                                                                                                                                                                                                       |
| type           | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .<br>The relationships between the value of this parameter and the protocol of the backend server group are as follows: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li><li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li><li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li></ul> |
| monitor_port   | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| expected_codes | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>Currently, this parameter is not supported and is fixed at <b>200</b> .                                                                                                                                                                                                                                                            |

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain_name | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> |
| url_path    | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                        |
| http_method | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                   |

Table 7-122 pools parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

## Example Request

- Example request: Configuring a health check  
POST https://{Endpoint}/v2.0/lbaas/healthmonitors

```
{
  "healthmonitor": {
    "admin_state_up": true,
    "pool_id": "bb44bffb-05d9-412c-9d9c-b189d9e14193",
    "domain_name": "www.test.com",
    "delay": 10,
    "max_retries": 10,
    "max_retries_down": 5,
    "timeout": 10,
    "type": "HTTP"
  }
}
```

```
}  
}
```

## Example Response

- Example response

```
{  
  "healthmonitor": {  
    "name": "",  
    "admin_state_up": true,  
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",  
    "domain_name": "www.test.com",  
    "delay": 10,  
    "max_retries": 10,  
    "expected_codes": "200",  
    "max_retries_down": 5,  
    "http_method": "GET",  
    "timeout": 10,  
    "pools": [  
      {  
        "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"  
      }  
    ],  
    "url_path": "/",  
    "type": "HTTP",  
    "id": "2dca3867-98c5-4cde-8f2c-b89ae6bd7e36",  
    "monitor_port": 112  
  }  
}
```

## Status Code

For details, see [Status Codes](#).

## 7.5.2 Querying Health Checks

### Function

This API is used to query the health checks. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### URI

GET /v2.0/lbaas/healthmonitors

### Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

## Request

**Table 7-123** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the health check from which pagination query starts, that is, the ID of the last health check on the previous page.<br>This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                           |
| limit        | No        | Integer | Specifies the number of health checks on each page. If this parameter is not set, all health checks are queried by default.                                                                                                                                                                                                                                                                                                   |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the health check ID.                                                                                                                                                                                                                                                                                                                                                                                                |
| tenant_id    | No        | String  | Specifies the ID of the project where the health check is performed.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                       |
| name         | No        | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                           |
| delay        | No        | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                                                                                                         |
| max_retries  | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                                               |



| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_retries_down | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                |
| admin_state_up   | No        | Boolean | Specifies the administrative status of the health check.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                                                                 |
| timeout          | No        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                 |
| type             | No        | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                                                                    |
| monitor_port     | No        | Integer | Specifies the port used for the health check.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                          |
| expected_codes   | No        | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>The value contains a maximum of 64 characters.<br><b>NOTE</b><br>This parameter is reserved. |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain_name | No        | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> <p>The value contains a maximum of 100 characters.</p> |
| url_path    | No        | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 80 characters.</p>                                                                                                                                                                                                                         |
| http_method | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                                                                          |

## Response

**Table 7-124** Response parameters

| Parameter      | Type  | Description                                                             |
|----------------|-------|-------------------------------------------------------------------------|
| healthmonitors | Array | Lists the health checks. For details, see <a href="#">Table 7-125</a> . |

| Parameter            | Type  | Description                                                                                                                                                                                                      |
|----------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| healthmonitors_links | Array | Provides links to the previous or next page during pagination query, respectively.<br><br>This parameter exists only in the response body of pagination query.<br>For details, see <a href="#">Table 7-127</a> . |

**Table 7-125 healthmonitors** parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                    |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the health check ID.                                                                                                                                                                                                                 |
| tenant_id        | String  | Specifies the ID of the project where the health check is performed.                                                                                                                                                                           |
| name             | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                                                            |
| delay            | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                          |
| max_retries      | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> .<br>The value ranges from <b>1</b> to <b>10</b> .                                             |
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> .<br>The value ranges from <b>1</b> to <b>10</b> .                                             |
| pools            | Array   | Lists the IDs of backend server groups associated with the health check.                                                                                                                                                                       |
| admin_state_up   | Boolean | Specifies the administrative status of the health check.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul> |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| timeout        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                                                                                                                                             |
| type           | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                                                                                                                                                                                                |
| monitor_port   | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                                                           |
| expected_codes | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>The value contains a maximum of 64 characters.                                                                                                                                                                           |
| domain_name    | String  | Specifies the domain name of HTTP requests during the health check.<br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>The value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b> .<br>The value contains a maximum of 100 characters. |

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                             |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| url_path    | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 80 characters.</p> |
| http_method | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>  |

**Table 7-126** pools parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

**Table 7-127** healthmonitors\_links parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                                     |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                              |
| rel       | String | <p>Specifies the prompt of the previous or next page.</p> <p>The value can be <b>next</b> or <b>previous</b>. The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page.</p> |

## Example Request

- Example request 1: Querying all health checks  
GET https://{Endpoint}/v2.0/lbaas/healthmonitors
- Example request 2: Querying HTTP health checks  
GET https://{Endpoint}/v2.0/lbaas/healthmonitors?type=HTTP

## Example Response

- Example response 1

```
{
  "healthmonitors": [
    {
      "monitor_port": null,
      "name": "",
      "admin_state_up": true,
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "domain_name": null,
      "delay": 5,

      "max_retries": 3,
      "max_retries_down": 5,
      "http_method": "GET",
      "timeout": 10,
      "pools": [
        {
          "id": "caef8316-6b65-4676-8293-cf41fb63cc2a"
        }
      ],
      "url_path": "/",
      "type": "HTTP",
      "id": "1b587819-d619-49c1-9101-fe72d8b361ef"
    }
  ]
}
```

- Example response 2

```
{
  "healthmonitors": [
    {
      "monitor_port": null,
      "name": "",
      "admin_state_up": true,
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",
      "domain_name": null,
      "delay": 5,
      "expected_codes": "200-204,300-302,401",
      "max_retries": 3,
      "max_retries_down": 5,
      "http_method": "GET",
      "timeout": 10,
      "pools": [
        {
          "id": "caef8316-6b65-4676-8293-cf41fb63cc2a"
        }
      ],
      "url_path": "/",
      "type": "HTTP",
      "id": "1b587819-d619-49c1-9101-fe72d8b361ef"
    }
  ]
}
```

## Status Code

For details, see [Status Codes](#).

## 7.5.3 Querying Details of a Health Check

### Function

This API is used to query details about a health check using its ID.

### URI

GET /v2.0/lbaas/healthmonitors/{healthmonitor\_id}

**Table 7-128** Parameter description

| Parameter        | Mandatory | Type   | Description                    |
|------------------|-----------|--------|--------------------------------|
| healthmonitor_id | Yes       | String | Specifies the health check ID. |

### Request

None

### Response

**Table 7-129** Response parameters

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 7-130</a> . |

**Table 7-130** healthmonitor parameter description

| Parameter   | Type    | Description                                                                                                                                                                                     |
|-------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id          | String  | Specifies the health check ID.                                                                                                                                                                  |
| tenant_id   | String  | Specifies the ID of the project where the health check is performed.                                                                                                                            |
| name        | String  | Specifies the health check name.                                                                                                                                                                |
| delay       | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                           |
| max_retries | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> . |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| pools            | Array   | Specifies the ID of the backend server group associated with the health check. For details, see <a href="#">Table 7-122</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| admin_state_up   | Boolean | Specifies the administrative status of the health check.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                                                                                                                                                       |
| timeout          | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                                                                                                                                                                                                                                                       |
| type             | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .<br>The relationships between the value of this parameter and the protocol of the backend server group are as follows: <ul style="list-style-type: none"><li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li><li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li><li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li></ul> |
| monitor_port     | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                                                                                                                                                                     |



| Parameter      | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <p>A single value, such as <b>200</b></p> <p>A list of values, such as <b>200,202</b></p> <p>A value range, such as <b>200-204</b></p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>Currently, this parameter is not supported and is fixed at <b>200</b>.</p>                                                                                       |
| domain_name    | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> |
| url_path       | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                        |
| http_method    | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                   |

**Table 7-131** pools parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

## Example Request

- Example request: Querying details of a health check  
GET https://{Endpoint}/v2.0/lbaas/healthmonitors/b7633ade-24dc-4d72-8475-06aa22be5412

## Example Response

- Example response

```
{
  "healthmonitor": {
    "name": "",
    "admin_state_up": true,
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",
    "domain_name": null,
    "delay": 10,
    "expected_codes": "200-204,300-302,401",
    "max_retries": 10,
    "max_retries_down": 5,
    "http_method": "GET",
    "timeout": 10,
    "pools": [
      {
        "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
      }
    ],
    "url_path": "/",
    "type": "HTTP",
    "id": "61c24cba-19bb-45c1-a013-7565e5f98872",
    "monitor_port": 112
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.5.4 Updating a Health Check

### Function

This API is used to update a health check.

### Constraints

If **provisioning\_status** of the load balancer for which the health check is configured is not **ACTIVE**, the health check cannot be updated.

### URI

PUT /v2.0/lbaas/healthmonitors/{healthmonitor\_id}

**Table 7-132** Parameter description

| Parameter        | Mandatory | Type   | Description                    |
|------------------|-----------|--------|--------------------------------|
| healthmonitor_id | Yes       | String | Specifies the health check ID. |

## Request

**Table 7-133** Parameter description

| Parameter     | Mandatory | Type   | Description                                                                |
|---------------|-----------|--------|----------------------------------------------------------------------------|
| healthmonitor | Yes       | Object | Specifies the health check. For details, see <a href="#">Table 7-134</a> . |

**Table 7-134** healthmonitor parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                    |
|------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                            |
| delay            | No        | Integer | Specifies the maximum time between health checks in the unit of second.<br>The value ranges from <b>1</b> to <b>50</b> .                                                                                       |
| max_retries      | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                |
| max_retries_down | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                |
| admin_state_up   | No        | Boolean | Specifies the administrative status of the health check.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                 |
| timeout          | No        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> . |
| type             | No        | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                    |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| monitor_port   | No        | Integer | Specifies the health check port. The port number ranges from 1 to 65535. The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                                                  |
| expected_codes | No        | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .                                                                                                                                                                                                                 |
| domain_name    | No        | String  | Specifies the domain name of HTTP requests during the health check. This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> . The value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests. The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b> . The value contains a maximum of 100 characters. |
| url_path       | No        | String  | Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/). This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> . An example value is <b>/test</b> . The value contains a maximum of 80 characters.                                                                                                                                                                                                                  |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                   |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| http_method | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT,</b> or <b>PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |

## Response

**Table 7-135** Response parameters

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 7-136</a> . |

**Table 7-136** healthmonitor parameter description

| Parameter        | Type    | Description                                                                                                                                                                                     |
|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the health check ID.                                                                                                                                                                  |
| tenant_id        | String  | Specifies the ID of the project where the health check is performed.                                                                                                                            |
| name             | String  | Specifies the health check name.                                                                                                                                                                |
| delay            | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                           |
| max_retries      | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> . |
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> . |
| pools            | Array   | Specifies the ID of the backend server group associated with the health check. For details, see <a href="#">Table 7-122</a> .                                                                   |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | Boolean | <p>Specifies the administrative status of the health check.</p> <p>This parameter is reserved. The value can be <b>true</b> or <b>false</b>.</p> <ul style="list-style-type: none"> <li>• <b>true</b>: Enabled</li> <li>• <b>false</b>: Disabled</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                          |
| timeout        | Integer | <p>Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b>.</p> <p><b>NOTE</b><br/>You are advised to set the value less than that of parameter <b>delay</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                             |
| type           | String  | <p>Specifies the health check protocol.</p> <p>The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, or <b>HTTP</b>.</p> <p>The relationships between the value of this parameter and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> <li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> </ul> |
| monitor_port   | Integer | <p>Specifies the health check port. The port number ranges from 1 to 65535.</p> <p>The value is left blank by default, indicating that the port of the backend server is used as the health check port.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| expected_codes | String  | <p>Specifies the expected HTTP status code. The following options are available:</p> <p>A single value, such as <b>200</b></p> <p>A list of values, such as <b>200,202</b></p> <p>A value range, such as <b>200-204</b></p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>Currently, this parameter is not supported and is fixed at <b>200</b>.</p>                                                                                                                                                                                                                                                   |

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain_name | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> |
| url_path    | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                        |
| http_method | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                   |

Table 7-137 pools parameter description

| Parameter | Type   | Description                                              |
|-----------|--------|----------------------------------------------------------|
| id        | String | Specifies the ID of the associated backend server group. |

## Example Request

- Example request: Updating a health check  
PUT https://{Endpoint}/v2.0/lbaas/healthmonitors/b7633ade-24dc-4d72-8475-06aa22be5412

```
{
  "healthmonitor": {
    "delay": 15,
    "name": "health-xx",
    "timeout": 12
  }
}
```

## Example Response

- Example response

```
{
  "healthmonitor": {
    "name": "health-xx",
    "admin_state_up": true,
    "tenant_id": "145483a5107745e9b3d80f956713e6a3",
    "domain_name": null,
    "delay": 15,
    "expected_codes": "200",
    "max_retries": 10,
    "max_retries_down": 5,
    "http_method": "GET",
    "timeout": 12,
    "pools": [
      {
        "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
      }
    ],
    "url_path": "/",
    "type": "HTTP",
    "id": "2dca3867-98c5-4cde-8f2c-b89ae6bd7e36",
    "monitor_port": 112
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.5.5 Deleting a Health Check

### Function

This API is used to delete a health check.

### Constraints

If **provisioning\_status** of the load balancer for which the health check is configured is not **ACTIVE**, the health check cannot be deleted.

### URI

DELETE /v2.0/lbaas/healthmonitors/{healthmonitor\_id}

**Table 7-138** Parameter description

| Parameter        | Mandatory | Type   | Description                    |
|------------------|-----------|--------|--------------------------------|
| healthmonitor_id | Yes       | String | Specifies the health check ID. |

### Request

None



## Response

None

## Example Request

- Example request: Deleting a health check  
DELETE https://{Endpoint}/v2.0/lbaas/healthmonitors/b7633ade-24dc-4d72-8475-06aa22be5412

## Example Response

- Example response  
None

## Status Code

For details, see [Status Codes](#).

# 7.6 Forwarding Policy

## 7.6.1 Adding a Forwarding Policy

### Function

This API is used to add a forwarding policy. The listener and forwarding policy determine how traffic is forwarded to backend servers.

- By matching the URL or domain name specified in the forwarding policy when **action** is set to **REDIRECT\_TO\_POOL**, the load balancer distributes the traffic to backend servers in a specific backend server group.
- When **action** is set to **REDIRECT\_TO\_LISTENER**, the HTTP listener is redirected to an HTTPS listener, and requests are routed by the HTTPS listener.

### Constraints

Currently, only redirects from an HTTP listener to an HTTPS listener are supported. When **action** is set to **REDIRECT\_TO\_LISTENER**, the listener specified by **listener\_id** can only be an HTTP listener, and the listener specified by **redirect\_listener\_id** can only be an HTTPS listener.

The load balancer of the HTTPS listener to which traffic is redirected must be the same as that of the HTTP listener.

### URI

POST /v2.0/lbaas/l7policies

## Request

**Table 7-139** Parameter description

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 7-140</a> . |

**Table 7-140** l7policy parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | Specifies the ID of the project where the forwarding policy is used.<br><br>The value must be the same as the value of <b>tenant_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                 |
| name           | No        | String  | Specifies the forwarding policy name.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                 |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding policy.<br><br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                      |
| description    | No        | String  | Provides supplementary information about the forwarding policy.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                       |
| listener_id    | Yes       | String  | Specifies the ID of the listener to which the forwarding policy is added. <ul style="list-style-type: none"><li>When <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, forwarding policies can be added to a listener with <b>protocol</b> set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li><li>When <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, forwarding policies can be added to a listener with <b>protocol</b> set to <b>HTTP</b>.</li></ul> |

| Parameter            | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action               | Yes       | String | <p>Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul>                                                                               |
| redirect_pool_id     | No        | String | <p>Specifies the ID of the backend server group to which traffic is forwarded. The default value is <b>null</b>.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</p> <p>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</p> <p>The backend server group must meet the following requirements:</p> <ul style="list-style-type: none"> <li>• Cannot be the default backend server group of the listener.</li> <li>• Cannot be the backend server group used by forwarding policies of other listeners.</li> </ul> |
| redirect_listener_id | No        | String | <p>Specifies the ID of the listener to which the traffic is redirected. The default value is <b>null</b>.</p> <p>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, and the listener must meet the following requirements:</p> <ul style="list-style-type: none"> <li>• Can only be an HTTPS listener.</li> <li>• Can only be a listener of the same load balancer.</li> </ul>                                                                                     |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                 |
|--------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_url | No        | String  | Specifies the URL to which traffic is redirected. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                      |
| position     | No        | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                          |
| rules        | No        | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 7-141</a> .<br>The list contains a maximum of two rules, and the <b>type</b> parameter of each rule must be unique. |

**Table 7-141** rules parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                      |
|----------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                                                |
| type           | Yes       | String  | Specifies the match type of a forwarding rule.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> The match type of forwarding rules in a forwarding policy must be unique. |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type | Yes       | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                      |
| invert       | No        | Boolean | <p>Specifies whether reverse matching is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| key          | No        | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| value        | Yes       | String  | <p>Specifies the value of the match content. The value cannot contain spaces.</p> <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+? ,=!: \\V()[]{}</code></li> </ul> |

## Response

**Table 7-142** Response parameters

| Parameter | Type   | Description                                                                     |
|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Object | Specifies the forwarding policy. For details, see <a href="#">Table 7-143</a> . |

**Table 7-143** l7policy parameter description

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id                   | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| tenant_id            | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| name                 | String  | Specifies the forwarding policy name.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| admin_state_up       | Boolean | Specifies the administrative status of the forwarding policy.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                              |
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li><li>● <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li></ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| Parameter           | Type    | Description                                                                                                                                     |
|---------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_url        | String  | Specifies the URL to which traffic is redirected. This parameter is reserved.                                                                   |
| rules               | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 7-144</a> .                                             |
| position            | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> . This parameter is reserved. |
| provisioning_status | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the forwarding policy.            |

**Table 7-144** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

## Example Request

- Example request 1: Adding a forwarding policy

POST <https://{Endpoint}/v2.0/lbaas/l7policies>

```
{
  "l7policy": {
    "name": "niubiao_yaqing_api-2",
    "listener_id": "3e24a3ca-11e5-4aa3-abd4-61ba0a8a18f1",
    "action": "REDIRECT_TO_POOL",
    "redirect_pool_id": "6460f13a-76de-43c7-b776-4fec06a676e",
    "rules": [
      {
        "type": "PATH",
        "compare_type": "EQUAL_TO",
        "value": "/test"
      },
      {
        "type": "HOST_NAME",
        "compare_type": "EQUAL_TO",
        "value": "www.test.com"
      }
    ]
  }
}
```

## Example Response

- Example response 1

```
{
  "l7policy": {
```

```
"redirect_pool_id": "6460f13a-76de-43c7-b776-4fefc06a676e",
"description": "",
"admin_state_up": true,
"rules": [
  {
    "id": "742600d9-2a14-4808-af69-336883dbb590"
  },
  {
    "id": "3251ed77-0d52-412b-9310-733636bb3fbf"
  }
],
"tenant_id": "573d73c9f90e48d0bddfa0eb202b25c2",
"listener_id": "3e24a3ca-11e5-4aa3-abd4-61ba0a8a18f1",
"redirect_url": null,
"redirect_listener_id": null,
"action": "REDIRECT_TO_POOL",
"position": 100,
"provisioning_status": "ACTIVE",

"id": "65d6e115-f179-4bcd-9bbb-1484e5f8ee81",
"name": "niubiao_yaqing_api-2"
}
```

## Status Code

For details, see [Status Codes](#).

## 7.6.2 Querying Forwarding Policies

### Function

This API is used to query the forwarding policies. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### URI

GET /v2.0/lbaas/l7policies

### Request

**Table 7-145** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                       |
|-----------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String | Specifies the ID of the forwarding policy from which pagination query starts, that is, the ID of the last forwarding policy on the previous page.<br><br>This parameter must be used together with <b>limit</b> . |



| Parameter       | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit           | No        | Integer | Specifies the number of forwarding policies on each page. If this parameter is not set, all forwarding policies are queried by default.                                                                                                                                                                                                                                                                                       |
| page_reverse    | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> . |
| id              | No        | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                           |
| tenant_id       | No        | String  | Specifies the ID of the project where the forwarding policy is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                       |
| name            | No        | String  | Specifies the forwarding policy name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                      |
| admin_status_up | No        | Boolean | Specifies the administrative status of the forwarding policy.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                                                                                           |
| description     | No        | String  | Provides supplementary information about the forwarding policy.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                            |
| listener_id     | No        | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                     |

| Parameter            | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action               | No        | String  | Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener.<br><br>The value can be one of the following: <ul style="list-style-type: none"><li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li><li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li></ul> |
| redirect_pool_id     | No        | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| redirect_listener_id | No        | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| redirect_url         | No        | String  | Specifies the URL to which traffic is redirected.<br><br>This parameter is reserved.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                          |
| position             | No        | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br><br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                               |
| provisioning_status  | No        | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> .<br><br>It specifies the provisioning status of the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                          |
| display_all_rules    | No        | Boolean | Specifies whether to display all forwarding rules added to the forwarding policy.<br><br>Value options:<br><b>false</b> : Forwarding rules will not be displayed, and only IDs are displayed.<br><b>true</b> : Forwarding rules will be displayed.                                                                                                                                                                                                                                                                   |

## Response

**Table 7-146** Response parameters

| Parameter        | Type  | Description                                                                                                                                                                                                  |
|------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| l7policies       | Array | Lists the forwarding policies. For details, see <a href="#">Table 7-147</a> .                                                                                                                                |
| l7policies_links | Array | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query.<br>For details, see <a href="#">Table 7-149</a> . |

**Table 7-147** l7policy parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| tenant_id      | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| name           | String  | Specifies the forwarding policy name.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding policy.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                              |
| description    | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| listener_id    | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| action         | String  | Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li><li>● <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li></ul> |

| Parameter            | Type    | Description                                                                                                                                     |
|----------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                     |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                            |
| redirect_url         | String  | Specifies the URL to which traffic is redirected. This parameter is reserved.                                                                   |
| rules                | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 7-144</a> .                                             |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> . This parameter is reserved. |
| provisioning_status  | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> . It specifies the provisioning status of the forwarding policy.            |

**Table 7-148** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

**Table 7-149** l7policies\_links parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                        |
|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                 |
| rel       | String | Specifies the prompt of the previous or next page. The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

## Example Request

- Example request 1: Querying all forwarding policies  
GET https://{Endpoint}/v2.0/lbaas/l7policies

- Example request 2: Querying forwarding policies through which requests are forwarded to the backend server group  
GET [https://{Endpoint}/v2.0/lbaas/l7policies?action=REDIRECT\\_TO\\_POOL](https://{Endpoint}/v2.0/lbaas/l7policies?action=REDIRECT_TO_POOL)

## Example Response

- Example response 1

```
{
  "l7policies": [
    {
      "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
      "redirect_listener_id": null,
      "description": "",
      "admin_state_up": true,
      "rules": [
        {
          "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
        },
        {
          "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
        }
      ]
    },
    {
      "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
      "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
      "redirect_url": null,
      "action": "REDIRECT_TO_POOL",
      "position": 2,
      "provisioning_status": "ACTIVE",
      "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
      "name": ""
    },
    {
      "redirect_pool_id": "59eebd7b-c68f-4f8a-aa7f-e062e84c0690",
      "redirect_listener_id": null,
      "description": "",
      "admin_state_up": true,
      "rules": [
        {
          "id": "f4499f48-de3d-4efe-926d-926aa4d6aaf5"
        }
      ]
    },
    {
      "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
      "listener_id": "e1310063-00de-4867-ab55-ccac4d9db364",
      "redirect_url": null,
      "action": "REDIRECT_TO_POOL",
      "position": 1,
      "provisioning_status": "ACTIVE",
      "id": "6cfd9d89-1d7e-4d84-ae1f-a8c5ff126f72",
      "name": ""
    }
  ],
  "l7policies_links": [
    {
      "href": "https://{Endpoint}/v2.0/lbaas/l7policies/061f461c-c7cf-47ab-9583-09be5076cd09/rules?marker=167c1a31-bc12-4c3d-9ad1-c9bf450df4ce&page_reverse=True",
      "rel": "previous"
    }
  ]
}
```

- Example response 2

```
{
  "l7policies": [
    {
      "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
      "redirect_listener_id": null,
      "description": "",
      "admin_state_up": true,
```

```
"rules": [
  {
    "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
  },
  {
    "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
  }
],
"tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

"listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
"redirect_url": null,
"action": "REDIRECT_TO_POOL",
"position": 2,
"provisioning_status": "ACTIVE",
"id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
"name": ""
},
{
  "redirect_pool_id": "59eebd7b-c68f-4f8a-aa7f-e062e84c0690",
  "redirect_listener_id": null,
  "description": "",
  "admin_state_up": true,
  "rules": [
    {
      "id": "f4499f48-de3d-4efe-926d-926aa4d6aaf5"
    }
  ],
  "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

  "listener_id": "e1310063-00de-4867-ab55-ccac4d9db364",
  "redirect_url": null,
  "action": "REDIRECT_TO_POOL",
  "position": 1,
  "provisioning_status": "ACTIVE",
  "id": "6cfd9d89-1d7e-4d84-ae1f-a8c5ff126f72",
  "name": ""
}
],
"l7policies_links": [
  {
    "href": "https://{Endpoint}/v2.0/lbaas/l7policies/061f461c-c7cf-47ab-9583-09be5076cd09/rules?marker=167c1a31-bc12-4c3d-9ad1-c9bf450df4ce&page_reverse=True",
    "rel": "previous"
  }
]
}
```

## Status Code

For details, see [Status Codes](#).

## 7.6.3 Querying Details of a Forwarding Policy

### Function

This API is used to query details about a forwarding policy.

### URI

GET /v2.0/lbaas/l7policies/{l7policy\_id}

**Table 7-150** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |

## Request

None

## Response

**Table 7-151** Parameter description

| Parameter | Type   | Description                                                                     |
|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Object | Specifies the forwarding policy. For details, see <a href="#">Table 7-152</a> . |

**Table 7-152** l7policy parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                         |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                 |
| tenant_id      | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                                                                                |
| name           | String  | Specifies the forwarding policy name.                                                                                                                                                                                                               |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding policy.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul> |
| description    | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                     |
| listener_id    | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                           |

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"><li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li><li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li></ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| rules                | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 7-144</a> .                                                                                                                                                                                                                                                                                                                                                                                                              |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                               |
| provisioning_status  | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> .<br>It specifies the provisioning status of the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                          |

**Table 7-153** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

## Example Request

- Example request: Querying details of a forwarding policy  
GET https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586



## Example Response

- Example response

```
{
  "l7policy": {
    "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
    "redirect_listener_id": null,
    "description": "",
    "admin_state_up": true,
    "rules": [
      {
        "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
      },
      {
        "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
      }
    ],
    "tenant_id": "a31d2bdcf7604c0faadb058e1e08819",
    "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
    "redirect_url": null,
    "provisioning_status": "ACTIVE",
    "action": "REDIRECT_TO_POOL",
    "position": 1,
    "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
    "name": "l7policy-garry-1"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.6.4 Updating a Forwarding Policy

### Function

This API is used to update a forwarding policy. You can select another backend server group or redirect to another HTTPS listener.

### URI

PUT /v2.0/lbaas/l7policies/{l7policy\_id}

**Table 7-154** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | Object | Specifies the forwarding policy ID. |

## Request

**Table 7-155** Parameter description

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 7-156</a> . |

**Table 7-156** l7policy parameter description

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String | Specifies the forwarding policy name. The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| description      | No        | String | Provides supplementary information about the forwarding policy. The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| redirect_pool_id | No        | String | Specifies the ID of the backend server group to which traffic is forwarded. The default value is <b>null</b> .<br>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .<br>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> .<br>The backend server group must meet the following requirements: <ul style="list-style-type: none"><li>• Cannot be the default backend server group of the listener.</li><li>• Cannot be the backend server group used by forwarding policies of other listeners.</li></ul> |

| Parameter            | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_listener_id | No        | String  | <p>Specifies the ID of the listener to which the traffic is redirected. The default value is <b>null</b>.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</p> <p>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>. The listener must meet the following requirements:</p> <ul style="list-style-type: none"><li>• Can only be an HTTPS listener.</li><li>• Can only be a listener of the same load balancer.</li></ul> |
| admin_state_up       | No        | Boolean | <p>Specifies the administrative status of the forwarding policy.</p> <p>This parameter is reserved, and the default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                              |

## Response

**Table 7-157** Response parameters

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 7-158</a> . |

**Table 7-158** l7policy parameter description

| Parameter | Type   | Description                                                          |
|-----------|--------|----------------------------------------------------------------------|
| id        | String | Specifies the forwarding policy ID.                                  |
| tenant_id | String | Specifies the ID of the project where the forwarding policy is used. |
| name      | String | Specifies the forwarding policy name.                                |

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up       | Boolean | Specifies the administrative status of the forwarding policy.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                              |
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to an HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"><li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li><li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li></ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| rules                | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 7-144</a> .                                                                                                                                                                                                                                                                                                                                                                                                              |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                               |
| provisioning_status  | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> .<br>It specifies the provisioning status of the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                          |

**Table 7-159** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

## Example Request

- Example request: Updating a forwarding policy

PUT https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586

```
{
  "l7policy": {
    "name": "test"
  }
}
```

## Example Response

- Example response

```
{
  "l7policy": {
    "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
    "redirect_listener_id": null,
    "description": "",
    "admin_state_up": true,
    "rules": [
      {
        "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
      },
      {
        "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
      }
    ],
    "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
    "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
    "redirect_url": null,
    "action": "REDIRECT_TO_POOL",
    "provisioning_status": "ACTIVE",
    "position": 2,
    "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
    "name": "test"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.6.5 Deleting a Forwarding Policy

### Function

This API is used to delete a specific forwarding policy.

## URI

DELETE /v2.0/lbaas/l7policies/{l7policy\_id}

**Table 7-160** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | Object | Specifies the forwarding policy ID. |

## Request

None

## Response

None

## Example Request

- Example request: Deleting a forwarding policy  
DELETE https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586

## Example Response

- Example response  
None

## Status Code

For details, see [Status Codes](#).

# 7.7 Forwarding Rule

## 7.7.1 Adding a Forwarding Rule

### Function

This API is used to add a forwarding rule. After you add a forwarding rule, the load balancer matches the domain name and path in the request and distributes the traffic to the backend server group specified by **redirect\_pool\_id** of the associated forwarding policy.

### Constraints

The match type of forwarding rules in a forwarding policy must be unique.

## URI

POST /v2.0/lbaas/l7policies/{l7policy\_id}/rules

**Table 7-161** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |

## Request

**Table 7-162** Parameter description

| Parameter | Mandatory | Type   | Description                                                                   |
|-----------|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Yes       | Object | Specifies the forwarding rule. For details, see <a href="#">Table 7-163</a> . |

**Table 7-163** rule parameter description

| Parameter       | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                |
|-----------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id       | No        | String  | Specifies the ID of the project where the forwarding rule is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                                                                                                |
| admin_status_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br><br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                      |
| type            | Yes       | String  | Specifies the match type of a forwarding rule.<br><br>The value can be one of the following: <ul style="list-style-type: none"><li>• <b>HOST_NAME</b>: matches the domain name in the request.</li><li>• <b>PATH</b>: matches the path in the request.</li></ul> The match type of forwarding rules in a forwarding policy must be unique. |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type | Yes       | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                                             |
| invert       | No        | Boolean | <p>Specifies whether reverse matching is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| key          | No        | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| value        | Yes       | String  | <p>Specifies the value of the match content. The value cannot contain spaces.</p> <p>The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!:  \() [] {}</code></li> </ul> |



## Response

**Table 7-164** Response parameters

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 7-165</a> . |

**Table 7-165** rule parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                                                                                     |
| type           | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>HOST_NAME</b>: matches the domain name in the request.</li><li>● <b>PATH</b>: matches the path in the request.</li></ul>                                                                                                                                                                                                                                                                                                          |
| compare_type   | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"><li>● <b>EQUAL_TO</b>: indicates exact match.</li></ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"><li>● <b>REGEX</b>: indicates regular expression match.</li><li>● <b>STARTS_WITH</b>: indicates prefix match.</li><li>● <b>EQUAL_TO</b>: indicates exact match.</li></ul> |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| invert              | Boolean | Specifies whether reverse matching is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| key                 | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| value               | String  | Specifies the value of the match content.<br>The value contains a maximum of 128 characters. <ul style="list-style-type: none"><li>When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li><li>When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!:@^-%#&amp;\$.*+?,=!:  \() [] {}</code></li></ul> |
| provisioning_status | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> .<br>It specifies the provisioning status of the forwarding rule.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Example Request

- Example request: Adding a forwarding rule  
POST <https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules>

```
{
  "rule": {
    "compare_type": "EQUAL_TO",
    "type": "PATH",
    "value": "/bbb.html"
  }
}
```

## Example Response

- Example response

```
{
  "rule": {
```

```
"compare_type": "EQUAL_TO",
"admin_state_up": true,
"provisioning_status": "ACTIVE",
"tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

"invert": false,
"value": "/bbb.html",
"key": null,
"type": "PATH",
"id": "c6f457b8-bf6f-45d7-be5c-a3226945b7b1"
}
}
```

## Status Code

For details, see [Status Codes](#).

## 7.7.2 Querying Forwarding Rules

### Function

This API is used to query forwarding rules. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### URI

GET /v2.0/lbaas/l7policies/{l7policy\_id}/rules

**Table 7-166** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |

### Request

**Table 7-167** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                               |
|-----------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String | Specifies the ID of the forwarding rule from which pagination query starts, that is, the ID of the last forwarding rule on the previous page.<br>This parameter must be used together with <b>limit</b> . |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit          | No        | Integer | Specifies the number of forwarding rules on each page. If this parameter is not set, all forwarding rules are queried by default.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| page_reverse   | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> .                                                                                                                                               |
| id             | No        | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| tenant_id      | No        | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| type           | No        | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>● <b>PATH</b>: matches the path in the request.</li> </ul> The match type of forwarding rules in a forwarding policy must be unique.                                                                                                                                                                                                                                   |
| compare_type   | No        | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>● <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>● <b>REGEX</b>: indicates regular expression match.</li> <li>● <b>STARTS_WITH</b>: indicates prefix match.</li> <li>● <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| invert              | No        | Boolean | Specifies whether reverse matching is supported. The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| key                 | No        | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| value               | No        | String  | Specifies the value of the match content. The value contains a maximum of 128 characters. <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!:  \()[]{}</code></li> </ul> |
| provisioning_status | No        | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> .<br>It specifies the provisioning status of the forwarding rule.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## Response

**Table 7-168** Response parameters

| Parameter   | Type  | Description                                                                                                                                                                                                  |
|-------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rules       | Array | Lists the forwarding rules. For details, see <a href="#">Table 7-169</a> .                                                                                                                                   |
| rules_links | Array | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query.<br>For details, see <a href="#">Table 7-170</a> . |

**Table 7-169** rules parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>• <b>true</b>: Enabled</li><li>• <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                                                                                     |
| type           | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"><li>• <b>HOST_NAME</b>: matches the domain name in the request.</li><li>• <b>PATH</b>: matches the path in the request.</li></ul>                                                                                                                                                                                                                                                                                                          |
| compare_type   | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"><li>• <b>EQUAL_TO</b>: indicates exact match.</li></ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"><li>• <b>REGEX</b>: indicates regular expression match.</li><li>• <b>STARTS_WITH</b>: indicates prefix match.</li><li>• <b>EQUAL_TO</b>: indicates exact match.</li></ul> |
| invert         | Boolean | Specifies whether reverse matching is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                 |
| key            | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                          |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value               | String | <p>Specifies the value of the match content. The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!:  \() [] {}</code></li> </ul> |
| provisioning_status | String | <p>This parameter is reserved, and its value can only be <b>ACTIVE</b>.</p> <p>It specifies the provisioning status of the forwarding rule.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Table 7-170 rules\_links parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                                     |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                              |
| rel       | String | <p>Specifies the prompt of the previous or next page.</p> <p>The value can be <b>next</b> or <b>previous</b>. The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page.</p> |

### Example Request

- Example request: Querying all forwarding rules of a specific forwarding policy  
GET <https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules>

### Example Response

- Example response
 

```
{
  "rules": [
    {
      "compare_type": "EQUAL_TO",
      "provisioning_status": "ACTIVE",
      "admin_state_up": true,
```

```
    "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
    "invert": false,
    "value": "www.test.com",
    "key": null,
    "type": "HOST_NAME",
    "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
  },
  {
    "compare_type": "EQUAL_TO",
    "provisioning_status": "ACTIVE",
    "admin_state_up": true,
    "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
    "invert": false,
    "value": "/aaa.html",
    "key": null,
    "type": "PATH",
    "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
  }
]
"rules_links": [
  {
    "href": "https://{Endpoint}/v2.0/lbaas/l7policies/061f461c-c7cf-47ab-9583-09be5076cd09/rules?marker=167c1a31-bc12-4c3d-9ad1-c9bf450df4ce&page_reverse=True",
    "rel": "previous"
  }
]
}
```

## Status Code

For details, see [Status Codes](#).

## 7.7.3 Querying Details of a Forwarding Rule

### Function

This API is used to query details about a forwarding rule using its ID.

### URI

GET /v2.0/lbaas/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 7-171** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |
| l7rule_id   | Yes       | String | Specifies the forwarding rule ID.   |

### Request

None



## Response

**Table 7-172** Response parameters

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 7-173</a> . |

**Table 7-173** rule parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>                                                                                                                                                                                                                                                                                                                     |
| type           | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>HOST_NAME</b>: matches the domain name in the request.</li><li>● <b>PATH</b>: matches the path in the request.</li></ul>                                                                                                                                                                                                                                                                                                          |
| compare_type   | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"><li>● <b>EQUAL_TO</b>: indicates exact match.</li></ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"><li>● <b>REGEX</b>: indicates regular expression match.</li><li>● <b>STARTS_WITH</b>: indicates prefix match.</li><li>● <b>EQUAL_TO</b>: indicates exact match.</li></ul> |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| invert              | Boolean | Specifies whether reverse matching is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| key                 | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| value               | String  | Specifies the value of the match content.<br>The value contains a maximum of 128 characters. <ul style="list-style-type: none"><li>When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li><li>When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!:  \() [] {}</code></li></ul> |
| provisioning_status | String  | This parameter is reserved, and its value can only be <b>ACTIVE</b> .<br>It specifies the provisioning status of the forwarding rule.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Example Request

- Example request: Querying details of a forwarding rule  
GET <https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3>

## Example Response

- Example response

```
{
  "rule": {
    "compare_type": "EQUAL_TO",
    "provisioning_status": "ACTIVE",
    "admin_state_up": true,
    "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

    "invert": false,
    "value": "/index.html",
```

```
"key": null,  
"type": "PATH",  
"id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"  
}
```

## Status Code

For details, see [Status Codes](#).

## 7.7.4 Updating a Forwarding Rule

### Function

This API is used to update a forwarding rule. You can change the mode that how traffic is distributed by updating the forwarding rule.

### URI

PUT /v2.0/lbaas/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 7-174** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |
| l7rule_id   | Yes       | String | Specifies the forwarding rule ID.   |

### Request

**Table 7-175** Parameter description

| Parameter | Mandatory | Type   | Description                                                                   |
|-----------|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Yes       | Object | Specifies the forwarding rule. For details, see <a href="#">Table 7-176</a> . |

**Table 7-176 rule parameter description**

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type   | No        | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"><li>• <b>EQUAL_TO</b>: indicates exact match.</li></ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>REGEX</b>: indicates regular expression match.</li><li>• <b>STARTS_WITH</b>: indicates prefix match.</li><li>• <b>EQUAL_TO</b>: indicates exact match.</li></ul> |
| admin_state_up | No        | Boolean | <p>Specifies the administrative status of the forwarding rule.</p> <p>This parameter is reserved, and the default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| invert         | No        | Boolean | <p>Specifies whether reverse matching is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                    |
| key            | No        | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                            |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | No        | String | <p>Specifies the value of the match content. The value cannot contain spaces.</p> <p>The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?=:  \()[]{}</code></li> </ul> |

## Response

**Table 7-177** Response parameters

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 7-178</a> . |

**Table 7-178** rule parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                |
|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                          |
| tenant_id      | String  | <p>Specifies the ID of the project where the forwarding rule is used.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                           |
| admin_state_up | Boolean | <p>Specifies the administrative status of the forwarding rule.</p> <p>This parameter is reserved. The value can be <b>true</b> or <b>false</b>.</p> <ul style="list-style-type: none"> <li><b>true</b>: Enabled</li> <li><b>false</b>: Disabled</li> </ul> |

| Parameter    | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type         | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>HOST_NAME</b>: matches the domain name in the request.</li><li>● <b>PATH</b>: matches the path in the request.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                             |
| compare_type | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"><li>● <b>EQUAL_TO</b>: indicates exact match.</li></ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"><li>● <b>REGEX</b>: indicates regular expression match.</li><li>● <b>STARTS_WITH</b>: indicates prefix match.</li><li>● <b>EQUAL_TO</b>: indicates exact match.</li></ul>                                                                                                                    |
| invert       | Boolean | Specifies whether reverse matching is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| key          | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| value        | String  | Specifies the value of the match content.<br>The value contains a maximum of 128 characters. <ul style="list-style-type: none"><li>● When <b>type</b> is set to <b>HOST_NAME</b>, the value can contain a maximum of 100 characters that contain only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li><li>● When <b>type</b> is set to <b>PATH</b>, the value can contain a maximum of 128 characters. When <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the value must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!:  \() [] {}</code></li></ul> |

| Parameter           | Type   | Description                                                                                                                           |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | String | This parameter is reserved, and its value can only be <b>ACTIVE</b> .<br>It specifies the provisioning status of the forwarding rule. |

## Example Request

- Example request: Updating a forwarding rule  
PUT https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/c6f457b8-bf6f-45d7-be5c-a3226945b7b1  

```
{
  "rule": {
    "compare_type": "STARTS_WITH",
    "value": "/ccc.html"
  }
}
```

## Example Response

- Example response  

```
{
  "rule": {
    "compare_type": "STARTS_WITH",
    "provisioning_status": "ACTIVE",
    "admin_state_up": true,
    "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

    "invert": false,
    "value": "/ccc.html",
    "key": null,
    "type": "PATH",
    "id": "c6f457b8-bf6f-45d7-be5c-a3226945b7b1"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.7.5 Deleting a Forwarding Rule

### Function

This API is used to delete a specific forwarding rule.

### URI

DELETE /v2.0/lbaas/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 7-179** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |
| l7rule_id   | Yes       | String | Specifies the forwarding rule ID.   |

## Request

None

## Response

None

## Example Request

- Example request: Deleting a forwarding rule  
DELETE https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/c6f457b8-bf6f-45d7-be5c-a3226945b7b1

## Example Response

- Example response  
None

## Status Code

For details, see [Status Codes](#).

# 7.8 Whitelist

## 7.8.1 Adding a Whitelist

### Function

This API is used to add a whitelist to control access to a specific listener. After a whitelist is added, only IP addresses in the whitelist can access the listener.

### URI

POST /v2.0/lbaas/whitelists



## Request

**Table 7-180** Parameter description

| Parameter | Mandatory | Type   | Description                                                             |
|-----------|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Yes       | Object | Specifies the whitelist. For details, see <a href="#">Table 7-181</a> . |

**Table 7-181** whitelist parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                             |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id        | No        | String  | Specifies the ID of the project where the whitelist is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br>The value contains a maximum of 255 characters.                                                                                                       |
| listener_id      | Yes       | String  | Specifies the listener ID.<br>Only one whitelist can be created for a listener.                                                                                                                                                                                                                         |
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled.<br>The default value is <b>true</b> .                                                                                                                             |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist. Use commas (,) to separate multiple IP addresses.<br><br>You can specify an IP address, for example, 192.168.11.1.<br><br>You can also specify an IP address range, for example, 192.168.0.1/24.<br><br>The default value is an empty string, that is, "". |

## Response

**Table 7-182** Response parameters

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 7-183</a> . |

**Table 7-183** whitelist parameter description

| Parameter        | Type    | Description                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                           |
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                       |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Example Request

- Example request: Adding a whitelist  
POST `https://{Endpoint}/v2.0/lbaas/whitelists`

```
{
  "whitelist": {
    "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
    "enable_whitelist": true,
    "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
  }
}
```

## Example Response

- Example response

```
{
  "whitelist": {
    "id": "eabfefa3fd1740a88a47ad98e132d238",
    "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
    "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
    "enable_whitelist": true,
    "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.8.2 Querying Whitelists

### Function

This API is used to query the whitelists. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### URI

GET /v2.0/lbaas/whitelists

### Request

**Table 7-184** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the whitelist from which pagination query starts, that is, the ID of the last whitelist on the previous page. This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                                 |
| limit        | No        | Integer | Specifies the number of whitelists on each page. If this parameter is not set, all whitelists are queried by default.                                                                                                                                                                                                                                                                                                      |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link. This parameter must be used together with <b>limit</b> . |

| Parameter        | Mandatory | Type    | Description                                                                                                                           |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id               | No        | String  | Specifies the whitelist ID.                                                                                                           |
| tenant_id        | No        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                       |
| listener_id      | No        | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Response

**Table 7-185** Response parameters

| Parameter        | Type  | Description                                                                                                                                                                                                  |
|------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| whitelists       | Array | Lists the whitelists. For details, see <a href="#">Table 7-186</a> .                                                                                                                                         |
| whitelists_links | Array | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query.<br>For details, see <a href="#">Table 7-187</a> . |

**Table 7-186** whitelist parameter description

| Parameter   | Type   | Description                                                                                                     |
|-------------|--------|-----------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the whitelist ID.                                                                                     |
| tenant_id   | String | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters. |
| listener_id | String | Specifies the ID of the listener to which the whitelist is added.                                               |

| Parameter        | Type   | Description                                                                                                                           |
|------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| enable_whitelist | Bool   | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String | Specifies the IP addresses in the whitelist.                                                                                          |

**Table 7-187 whitelists\_links** parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                           |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                    |
| rel       | String | Specifies the prompt of the previous or next page.<br>The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

## Example Request

- Example request 1: Querying all whitelists  
GET https://{Endpoint}/v2.0/lbaas/whitelists
- Example request 2: Querying the whitelists added to listener eabfefa3fd1740a88a47ad98e132d230  
GET https://{Endpoint}/v2.0/lbaas/whitelists?listener\_id=eabfefa3fd1740a88a47ad98e132d230

## Example Response

- Example response 1
 

```
{
  "whitelists": [
    {
      "id": "eabfefa3fd1740a88a47ad98e132d238",
      "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
      "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
      "enable_whitelist": true,
      "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
    },
    {
      "id": "eabfefa3fd1740a88a47ad98e132d326",
      "listener_id": "eabfefa3fd1740a88a47ad98e132d327",
      "tenant_id": "eabfefa3fd1740a88a47ad98e132d436",
      "enable_whitelist": true,
      "whitelist": "192.168.12.1,192.168.1.1/24,192.168.203.18/8,100.164.5.1/24"
    }
  ]
}
```
- Example response 2
 

```
{
  "whitelists": [
    {
```

```
    "id": "eabfefa3fd1740a88a47ad98e132d238",  
    "listener_id": "eabfefa3fd1740a88a47ad98e132d230",  
    "tenant_id": "eabfefa3fd1740a88a47ad98e132d239",  
    "enable_whitelist": true,  
    "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"  
  },  
  {  
    "id": "eabfefa3fd1740a88a47ad98e132d326",  
    "listener_id": "eabfefa3fd1740a88a47ad98e132d327",  
    "tenant_id": "eabfefa3fd1740a88a47ad98e132d439",  
    "enable_whitelist": true,  
    "whitelist": "192.168.12.1,192.168.1.1/24,192.168.203.18/8,100.164.5.1/24"  
  }  
]  
}
```

## Status Code

For details, see [Status Codes](#).

## 7.8.3 Querying Details of a Whitelist

### Function

This API is used to query details about a whitelist using its ID.

### URI

GET /v2.0/lbaas/whitelists/{whitelist\_id}

**Table 7-188** Parameter description

| Parameter    | Mandatory | Type   | Description                 |
|--------------|-----------|--------|-----------------------------|
| whitelist_id | Yes       | String | Specifies the whitelist ID. |

### Request

None

### Response

**Table 7-189** Response parameters

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 7-190</a> . |

**Table 7-190 whitelist** parameter description

| Parameter        | Type    | Description                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                           |
| tenant_id        | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                 |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Example Request

- Example request: Querying details of a whitelist  
GET https://{Endpoint}/v2.0/lbaas/whitelists/09e64049-2ab0-4763-a8c5-f4207875dc3e

## Example Response

- Example response

```
{
  "whitelist": {
    "id": "eabfefa3fd1740a88a47ad98e132d238",
    "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
    "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
    "enable_whitelist": true,
    "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.8.4 Updating a Whitelist

### Function

This API is used to update a whitelist. You can enable or disable the whitelist function or change IP addresses in the whitelist. If you change IP addresses in the whitelist, it will be deleted, and a new one is generated.

### URI

PUT /v2.0/lbaas/whitelists/{whitelist\_id}

**Table 7-191** Parameter description

| Parameter    | Mandatory | Type   | Description                 |
|--------------|-----------|--------|-----------------------------|
| whitelist_id | Yes       | String | Specifies the whitelist ID. |

## Request

**Table 7-192** Parameter description

| Parameter | Mandatory | Type   | Description                                                             |
|-----------|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Yes       | Object | Specifies the whitelist. For details, see <a href="#">Table 7-193</a> . |

**Table 7-193** whitelist parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                 |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled.<br>The default value is <b>true</b> .                                                                                                                 |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist. Use commas (,) to separate multiple IP addresses.<br>You can specify an IP address, for example, 192.168.11.1.<br>You can also specify an IP address range, for example, 192.168.0.1/24.<br>The default value is an empty string, that is, "". |

## Response

**Table 7-194** Parameter description

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 7-195</a> . |



**Table 7-195 whitelist** parameter description

| Parameter        | Type    | Description                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                           |
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                       |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Example Request

- Example request: Updating a whitelist

```
PUT https://{Endpoint}/v2.0/lbaas/whitelists/dcaf46f1-037c-4f63-a31f-e0c4c18032c7
```

```
{
  "whitelist": {
    "enable_whitelist": true,
    "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
  }
}
```

## Example Response

- Example response

```
{
  "whitelist": {
    "id": "eabfefa3fd1740a88a47ad98e132d238",
    "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
    "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
    "enable_whitelist": true,
    "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
  }
}
```

## Status Code

For details, see [Status Codes](#).

## 7.8.5 Deleting a Whitelist

### Function

This API is used to delete a specific whitelist.

## URI

DELETE /v2.0/lbaas/whitelists/{whitelist\_id}

**Table 7-196** Parameter description

| Parameter    | Mandatory | Type   | Description                 |
|--------------|-----------|--------|-----------------------------|
| whitelist_id | Yes       | String | Specifies the whitelist ID. |

## Request

None

## Response

None

## Example Request

- Example request: Deleting a whitelist  
DELETE https://{Endpoint}/v2.0/lbaas/whitelists/35cb8516-1173-4035-8dae-0dae3453f37f

## Example Response

- Example response 1  
None

## Status Code

For details, see [Status Codes](#).

# 7.9 Certificate

## 7.9.1 Creating a Certificate

### Function

This API is used to create a certificate. After a certificate is bound to a listener, the load balancer authenticates the client using this certificate, and backend servers can establish secure and reliable HTTP connections with the client.

## URI

POST /v2.0/lbaas/certificates

## Request

**Table 7-197** Parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                  |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | Specifies the ID of the project where the certificate is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                                      |
| admin_state_up | No        | Boolean | Specifies the administrative status of the certificate.<br><br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                            |
| name           | No        | String  | Specifies the certificate name.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                       |
| description    | No        | String  | Provides supplementary information about the certificate.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                             |
| type           | No        | String  | Specifies the certificate type. The default value is <b>server</b> .<br><br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>server</b>: indicates the server certificate.</li><li>● <b>client</b>: indicates the CA certificate.</li></ul> |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain      | No        | String | <p>Specifies the domain name associated with the server certificate. The default value is <b>null</b>.</p> <p>The value contains a maximum of 100 characters.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• A common domain name contains 0 to 100 characters and consists of several labels separated by dots (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li> <li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*).</li> </ul> <p><b>NOTE</b><br/>This parameter is valid only when <b>type</b> is set to <b>server</b>.</p> |
| private_key | No        | String | <p>Specifies the private key of the server certificate. The value must be PEM encoded.</p> <ul style="list-style-type: none"> <li>• This parameter will be ignored if <b>type</b> is set to <b>client</b>. A CA server can still be created and used normally. This parameter will be left blank even if you enter a private key that is not PEM encoded.</li> <li>• This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>. If you enter an invalid private key, an error is returned.</li> </ul>                                                                                                                                                                                                                    |
| certificate | Yes       | String | <p>Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required.</p> <p>The public key is in PEM format.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Response

**Table 7-198** Parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                           |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                         |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                                     |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>         |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                    |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                          |
| type           | String  | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>server</b>: indicates the server certificate.</li><li>● <b>client</b>: indicates the CA certificate.</li></ul>                   |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                  |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                    |
| certificate    | String  | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time    | String  | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                             |



```
\nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQPG6jjjNQuvIBQYUDauDT4W2XUz5wAn
\njiOyQ83va672K1G9s8n6xIH+xwwdSNnozaKzC87vwSeZKIodl9I5I98TGKI6OoDa
\nemzmCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNjYvPRLYLzp1HMnl6hkjPk4PCZ
\nwKnha0dlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNItn1HZZGml\n
+vbmunok3A2lucl14rnsrbkGYqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----"
}
```

## Example Response

- Example response

```
{
  "domain": "www.elb.com",
  "expire_time": "2045-11-17 13:25:47",
  "update_time": "2017-12-04 06:49:13",
  "create_time": "2017-12-04 06:49:13",
  "id": "3d8a7a02f87a40ed931b719edfe75451",
  "admin_state_up": true,
  "private_key": "-----BEGIN PRIVATE KEY-----
\nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBCgwwgSkAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcj8KCnX1nfzTvl2ksXITQ2o9BkpStnPentB4s32ZiJRMlk
+61iUUMNsHwk2WBX57J3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLv6QoP3cq7PGWcuZKv7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AqzXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMsIHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl\nZAPYUBkl/
0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k\nEo04Z9H/
AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\nfvCArftGgMaYWPSPNCJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUSHFgZjv5OQB
\nZVe4a5Hj1OcgYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
\nnciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6j9c9M\nEGpfY16AdHlWfZcT/
RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale\nnkrquPtFv1vWklg
+bUfhGgaiAEYTpAUN9t2DVlIijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCzo8MKeV2jf2drlxRRwRl33SksQzbAQ/qrLd7GP3sCGqvkxWY2FPdFy8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSPH7JNF3Tm/JH/fbwjwp7dt
\nJ7n8EzkRUNE6alMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\nniWgTWHXPZxUQaYhpjXo6+IMl6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fbuXh6l8K8lQRfBjFff56p9pMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jr4eB
\n1lVQhELG9CbKsdzKM71GyElmix/T7FnSHIWIho1qVo6AQyduNWNnAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fflERmazdOTwYz0tGqZnXkEeMdSLkmlqCRigWhGQKBgDak\n/
735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha\nnfl7FPMDvGl8ioYbvlHFHf
+X0Xs9r1S8yeWnHoXmb6eXWmYKMJrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJKd4wHW54PwD4Ctfk9o
\nnjHjWB7pQUlypTZO9dm+4fpCMn9Okf43AE2yAOAP94GdzdDJKxfciXKcsYr9IluK
\nfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXZuEd\n3fy
+1rCUwzOp9LSjtYf4ege\n-----END PRIVATE KEY-----",
  "tenant_id": "930600df07ac4f66964004041bd3deaf",
  "type": "server",
  "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgIcERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMNTXID
\nb21wYW55IENBM4XDTE4MDcwMjEzU0N1oXDTQ1MTEtNzEzU0N1owFDESMBAG
\nA1UEAwWJbG9jYXVob3N0MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAn0FQGi3ucTX
+DNud1p/
b4XVM6i3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nu0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDb
B8CtIgv+eyU9yYJslWx/
Bm5kWNPh9\n7B9Yu9pbb2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lCHKt/W7jaS
\nlAzlsx+QM6l7QjHwJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\nny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPILZUUn7yw3nkOOTLMI28IEv0Wy
\nYd7CMJQkS1NPJBKNOGFR/wIDAQABozowODAhBgNVHREEGjAYggpbk21haW4uY29t
\nnhwQKuUvJhwr/AAABMBMGA1UdJQMMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBCwUA
\nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQPG6jjjNQuvIBQYUDauDT4W2XUz5wAn
\njiOyQ83va672K1G9s8n6xIH+xwwdSNnozaKzC87vwSeZKIodl9I5I98TGKI6OoDa
\nemzmCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNjYvPRLYLzp1HMnl6hkjPk4PCZ
\nwKnha0dlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNItn1HZZGml\n
+vbmunok3A2lucl14rnsrbkGYqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----",
  "name": "https_certificate",
  "description": "description for certificate"
}
```

## Status Code

For details, see [Status Codes](#).

## 7.9.2 Querying Certificates

### Function

This API is used to query all the certificates. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

Parameters **marker**, **limit**, and **page\_reverse** are used for pagination query. Parameters **marker** and **page\_reverse** take effect only when they are used together with parameter **limit**.

### URI

GET /v2.0/lbaas/certificates

### Request

**Table 7-199** Parameter description

| Parameter    | Mandator<br>y | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|---------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No            | String  | Specifies the ID of the certificate from which pagination query starts, that is, the ID of the last certificate on the previous page. This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                             |
| limit        | No            | Integer | Specifies the number of certificates on each page. If this parameter is not set, all certificates are queried by default.                                                                                                                                                                                                                                                                                                  |
| page_reverse | No            | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link. This parameter must be used together with <b>limit</b> . |



| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id          | No        | String | Specifies the certificate ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| name        | No        | String | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| description | No        | String | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| type        | No        | String | Specifies the certificate type. The default value is <b>server</b> .<br>The value can be one of the following: <ul style="list-style-type: none"><li>• <b>server</b>: indicates the server certificate.</li><li>• <b>client</b>: indicates the CA certificate.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| domain      | No        | String | Specifies the domain name associated with the server certificate. The default value is <b>null</b> .<br>The value contains a maximum of 100 characters.<br>The value can be one of the following: <ul style="list-style-type: none"><li>• A common domain name contains 0 to 100 characters and consists of several labels separated by dots (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li><li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*).</li><li>• This parameter is valid only when <b>type</b> is set to <b>server</b>.</li></ul> |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| private_key | No        | String | Specifies the private key of the server certificate. The value must be PEM encoded. <ul style="list-style-type: none"> <li>This parameter will be ignored if <b>type</b> is set to <b>client</b>. A CA server can still be created and used normally. This parameter will be left blank even if you enter a private key that is not PEM encoded.</li> <li>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>. If you enter an invalid private key, an error is returned.</li> </ul> |
| certificate | No        | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format.                                                                                                                                                                                                                                                                |
| create_time | No        | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                                                                                                                                                                                                                                                                                        |
| update_time | No        | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                                                                                                                                                                                                                                                                                        |

## Response

**Table 7-200** Parameter description

| Parameter    | Type    | Description                                                            |
|--------------|---------|------------------------------------------------------------------------|
| certificates | Array   | Lists the certificates. For details, see <a href="#">Table 7-201</a> . |
| instance_num | Integer | Specifies the number of certificates.                                  |

**Table 7-201 certificates** parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                           |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                         |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                                     |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul>         |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                    |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                          |
| type           | String  | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>server</b>: indicates the server certificate.</li><li>● <b>client</b>: indicates the CA certificate.</li></ul>                   |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                  |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                    |
| certificate    | String  | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time    | String  | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                             |

| Parameter   | Type   | Description                                                                                                   |
|-------------|--------|---------------------------------------------------------------------------------------------------------------|
| create_time | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format. |
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format. |

### Example Request

- Request example 1: Querying all certificates

```
GET https://{Endpoint}/v2.0/lbaas/certificates
```

- Example 2: Querying a certificate whose ID is ef4d341365754a959556576501791b19 or ed40e8ea9957488ea82de025e35b74c0

```
GET https://{Endpoint}/v2.0/lbaas/certificates?
```

```
id=ef4d341365754a959556576501791b19&id=ed40e8ea9957488ea82de025e35b74c0
```

### Example Response

- Example response 1

```
{
  "certificates": [
    {
      "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
\nb21wYW55IENBMB4XDTE4MDcwMjEzMTU0N1oXDTE4MTExNzEzMTU0N1owFDESMBAG
\nA1UEAwWJbG9yYXxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAn0FQZi3ucTX
+DNud1p/
b4XVM613rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDb
B8CtIgv+eyU9yYJslWx/
Bm5kWNPh9\n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPLZUUn7yw3nkOOTLMI28IEv0Wy
\nYd7CMJQkS1NPJBKNOGFR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
\nnhwQKuUvJhwr/AAABMBMGA1UdJQMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBCwUA
\nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQPG6jijNQuviBQYUDauDT4W2XUZ5wAn
\nnjiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
\nnezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYLzp1HMnl6hkjPk4PCZ
\nnwKnha0dlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml\n
+vbmunok3A2lucl14rnsrbckGYqXGikySN6B2cRLBDK4Y3wChiW6NVVtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3\n-----END CERTIFICATE-----",
      "create_time": "2017-02-25 09:35:27",
      "expire_time": "2045-11-17 13:25:47",
      "description": "description for certificate",
      "domain": "www.elb.com",
      "id": "23ef9aad4ecb463580476d324a6c71af",
      "admin_state_up": true,
      "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
      "name": "https_certificate",
      "private_key": "-----BEGIN PRIVATE KEY-----
\nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAKggwggSkAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+87kYwsMhRcgdcJ8KcnX1nfzTvl2ksXITQ2o9BkpStnPe\ntB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AqzXt
```

```

\nCOFYn6RTH5SRug4hKNN7sT1eYMslHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl\nZAPYUBkl/
0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k\nEo04Z9H/
AgMBAECggEAEleaQqHCWZk/HyYN0Am/GJSgFa2tD60SXY2fUieh8/HL
\nfvCARftGgMaYWPSNCRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUshHFgZjv5OQB
\nZve4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
\nciu9YklnNEHu6uRj5g/eGGX3KQynTvwIhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M\nEGpfYI6AdHlWfZcT/
RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale\nkrgrPtFv1vWklg
+bUFhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCZ08MKeV2jf2drLxRRwRL33SksQbzAQ/qrLd7GP3sCGqvkwWY2FPdFYf8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjpp7dt
\nJ7n8EzkRUNE6alMHOFeeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\niWgTWXHPZxUQaYhpjXo6+IMl6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fbuXh6l8K8lQRfBpjff56p9pMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zf3bGSXU/jR4eB
\n1lVQhELG9CbKsZdKM71GyElmix/T7FnJSHIwlho1qVo6AQyduNWNwAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fflERmazdOTWjYZ0tGqZnXkEeMdSLkmlcRigWhGQKbGdAk\n/
735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha\nfl7FPMDvGl8ioYbvlHFHf
+X0Xs9r1S8yeWnHoXMB6eXWmYKMJrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAjKd4wHW54PwD4Ctfk9o
\nhjWb7pQLUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfiXKcsYr9IluK
\nfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd\n3fy
+1rCUwzOp9LSjtYf4ege\n-----END PRIVATE KEY-----",
    "type": "server",
    "update_time": "2017-02-25 09:35:27"
  }
],
"instance_num": 1
}

```

- Example response 2

```

{
  "certificates": [
    {
      "description": "Push by SSL Certificate Manager",
      "domain": null,
      "id": "ed40e8ea9957488ea82de025e35b74c0",
      "name": "certForSonar9",
      "certificate": "-----BEGIN CERTIFICATE-----
MIIFCzCBHOGAwIBAgIQBlQycV3bWsvsCttv5rgRjANBgkqhkiG9w0BAQsFADBu
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNlcnQgSW5jMRkwFwYDVQQLExB3
d3cuZGlnaWNlcnQuY29tMS0wKwYDVQQDEyRfYmNyeXB0aW9uIEV2ZXJ5d2hlcmlmUg
RFYgVExTIENBIC0gRzEwHhcNMjgwNzEwMDAwMDAwWhcNMjkwNzEwMDAwMDAwWjAU
MRlWEAyDVQQDEwlpY2UxMjMudGswggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEK
AoIBAQCTDlIQMoAvinR6X1dihhNwbdGesbMW6NZX7ffp9XrB3KcqqLxzl4VmH9
PntvrpLJNeolgLqDZZc4zKbUkmaqY1dvGDs41coKzdtc9lg23GVK48wfesnk5r50
afyU52R1JlSHDOhiDhHOSyhrOzc2GreLrByWKFUaAue6rTnyMbzQaSPtrTAqsURZ
wcmJ6R3A6JwokOgxXBSu41ufPQIFkMgxygKxEBLzJLjRqCXQHyoXbsTyolb6jwp
w4H6vcRIEcFags98ApWRoEKjy7eOP3UUm05F+OkOvXhrxEqLpM/rWEOpmVlmm9
DgBafYb3xT/MtT2VRSfCJQHglcsdAgMBAAGjggJ9MIIcEtafBgNVHSMEGDAWgBRV
dE+yck/1YLpQ0dfmUVyaAYca1zAdBgNVHQ4EFgQUEFavzYXBNblHBchbaKcUKad+
qCEwIwYDVR0RBwwG0JJaWNlMTIzLnRrgg13d3cuaWNlMTIzLnRrMA4GA1UdDwEB
/wQEAwIFoDAdBgNVHSUEfjAUBggrBgEFBQcDAQYIKwYBBQUHAWIwTAYDVR0gBEUw
QzA3BglghkgBhV1sAQIwKjAoBggrBgEFBQcCARYcaHR0cHM6Ly93d3cuZGlnaWNl
cnQuY29tL0NQZuAIBgZngQwBAgEwgYEGCCsGAQUFBwEBBHUwczAlBggrBgEFBQcw
AYYZaHR0cDovL29jc3AyLmRpZ2ljZXJ0LmNvbTBKbGgrBgEFBQcwAoY+aHR0cDov
L2NhY2VydHMuZGlnaWNlcnQuY29tL0VUy3J5cHRpb25FdmVyeXdoZXJIRFZUTFND
QS1HMS5jcnQwCQYDVROTBAlwADCCAQQGCSisGAQQB1nkCBAIEgfUEgflA8AB2AKS5
CZC0GFgUh7sTosxncAo8NZgE+RvfuON3zQ7lDdwQAAABZlOnLClIAAAQDAEwRQIH
AJX6gCXNggPdOfDdtZpZlYr64TTrR/+b9QKKhyJ2EjBAiAWgu3BG2QK9tWQXpUN
IFadCOnvqmDovabg5nmRMan2mQB2AlD1v+dZfPiMQ5lfvfNu/1aNR1Y2/0q1YMG0
6v9eolMPAAABZlOnLQEAQAQDAEwRQIHARjvRe/7n88dD6KdhNrd4LdfJGARQNmta
Y/K2dFDQXPSfAiBOLrWW8unHOL25RWHJU7Ost3XkNhQYtrLDJrnzo/9kZzANBgkq
hkiG9w0BAQsFAAOCAQEAEqtX9cHmj4OnNAk0lGmF3nKS/u/UgGsY4EJfXwY2bTZ
PCkqxQOA6HEX59v+UilTojrNDi0WskRm/8SKBHTmRwzWx3ile8KiR6ffQhPUtV
XHZcTfAfo47caxqon8vumMlEv1PxVImivQ446K7z3kGm34dhMYxS4Gz2gTl8lKt
90OegejuhbAs5Wlvp1BK8HIYIb5+mw+cgkUC9KTALs5qVbWzogb0bS20KaYarGcu
otcZAOMeJdBFWnpzhr1fxmjaNY4u4hrpZSTU/iBjdHapoza3zAffxysmGYqs9dR
jFyxZeR4scz8GqSTFviNdH9jvtDjkdAC5hfMaB811Q==
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----

```

```
MIIeEqCCA5KgAwIBAgIQAnmsRYvBskWr+YBTzSybsTANBgkqhkiG9w0BAQsFADBh
MQswCQYDVQQGEwVUzEVMBMGA1UEChMMRGluaUNlcnQgSW5jMRkwFwYDVQQLExB3
d3cuZGlnaWNLcnQuY29tMSAwHgYDVQDEExdEaWdpQ2VydCBHbG9iYWwvUm9vdCBD
QTAeFw0xNzExMjc4MjQ2MTBaFw0yNzExMjc4MjQ2MTBaMG4xCzAJBgNVBAYTA1VT
MRUwEwYDVQQKEwEaWdpQ2VydCBJbmMxGTAXBgNVBAsTEHd3dy5kaWdpY2VydC5j
b20xLTArBgNVBAMTJEVUy3J5cHRpb24gRXZlcnl3aGVyZSBEViBUTFMgQ0EgLSBH
MTCCASiWdQYIKoZlhcNAQEBAQADggEPADCCAQoCggEBALPeP6wkab41dyQh6mKc
oHqt3jRlxW5MDvf9QyiOR7VfFwK656es0UFIb74N9pRntzF1UgYzDGu3ppZVMdo
lbxhm6dWS9OK/LfehKNT0OYI9aqk6F+U7cA6jxSC+iDBPXwdf4rs3KRyp3aQn6pj
pp1yr71B6Y4zv72Ee/PLZ/6rK6InC6WpK0nPVOYR7n9iDuPe1E4IxUMBH/T33+3h
yuH3dvgfjWUOUkjdpMbyxX+XNle5uEliyBsi4lvbcTCh8ruifCii5mDXkZrnMT8n
wfYCV6v6kDdXkbgGRLKsR4pucbJtbKqIKUGxuzI2t7pfewKRc5nWecvDBZF3+p1M
pA8CAwEAaOCAU8wggFLMB0GA1UdDgQWBRRVdE+yck/1YLPQ0dfmUVyaYca1zAf
BgNVHSMEGDAWgBQD3IA1VtFMu2bwo+IbG8OXsj3RVTAOBgNVHQ8BAf8EBAMCAAYw
HQYDVR0LBBYwFAYIKwYBBQUHAWEgCCsGAQUFBwMCMBlGA1UdEwEB/wQIMAYBAf8C
AQAwNAYIKwYBBQUHAQEEDAmMCQGCCsGAQUFBzABhhhodHRwOi8vb2Nzc5kaWdp
Y2VydC5jb20wQgYDVROfBDswOTA3oDWgM4YxaHR0cDovL2NybdMuZGlnaWNLcnQu
Y29tL0RzPzIDZXJ0R2xvYmFsUm9vdENBLmNybdBMBBgNVHSAERTBDMDCGCWCGSAGG
/YWwBAjAqMCgGCCsGAQUFBwIBFhcodHRwczovL3d3dy5kaWdpY2VydC5jb20v1BT
MAgGBmeBDAECATANBgkqhkiG9w0BAQsFAAOCAQEAK3Gp6/aGq7aBZsxf/oQ+TD/B
SwW3AU4ETK+GQf2kFzYZky5SFrHdPomunx2HBzViUchGoofGgg7gHW0W3MlQAXW
M0r5LUvStcr82QDWYNPaUy4taCQmyaJ+VB+6wxHstSigOLSNF2a6vg4rgexixeIV
4YSB03Yqp2t3TeZHM9ESfkus74nQyW7pRGezj+TC44xCagCQOzzNmzEAP2SnCrJ
sNE2DpRVMnL8J6xBRdjmOsC3N6cQuKuRXbzByVjCqAA8t1L0I+9wXJkLrPyErj
rMKWabFLmfK/AHNf4ZihwPGOc7w6UHczBZXH5RFzJNnww+WnKuTPI0HfnVH8lg==
-----END CERTIFICATE-----",
  "type": "server",
  "create_time": "2019-03-03 16:32:30",
  "private_key": "-----BEGIN RSA PRIVATE KEY-----
MIIEpQIBAAKCAQEARUw5UDKAL8iJ0el9XyOYTcG3RnrGzFujWV+336Y/V6wdyggq
pccyOFZh/T57b66SyTxqJYC6g2WXOMym1JJqsWNxbxg7ONXKCs3bXPSINTxlSuPM
H3rJ5Oa+dGn8lOdkdSZUhwzoYg4Rzksoazs3Nhq3i6wclihVgglNuq05j8G0Gkj
7a0wKrFEWcHJiekdwOicKJDoMvWUruNbnz0lhZDIMcoCsRAS8yCS40ag10B2KMW7
E8qJW+o8KcOB+r3ESBHBQJLpFAKvkaBCo8u3jj91FJtORfjpDr14a5cRKId5v65c
BND5lZzpvQ4AWn2G98U/zLU9lUUnwiUB4CHLHQIDAQABoIAGs5r1SompP2OwA8
virwVRVxdPUQ5oxvbuTPys+A59RxiU8kFW+qJ4fJMYsOfRXLtOtg+5tK20YBru
1ZLVfVqAowrELXB/J2ID+WTMkLORLsNlq1kW+n9cLL6PDY98llW/n7FoFSKGL5HT
AxFNGUvpr2vlojuL6nGfmcM47uscJ9aP6Ijxr4p70dhPVjZBdnMnXyWkRk3dZt/
E0B/p8J5i3oo5Rucv4DOFB+01wXGAVyx5/zce+NZdhyrivkj3hHV55SxGjVrVWWhj
a3dAlbpKwYgflLj0inRdJYmljBdbG2bHFix7+ncBg8B2oerJXC6/fANwRGU5/LZU
5xuPVWkCgYEA6an8TY1unIGLYL5aBJ16Tx4usqMyTXr/T4zkQyftRPMt+ZuxVQHl
GHsg7XvLFNd04MBZxtkZxaYVcpOm7OUYcl0i9ZAKWXXoXcBt1Oom3gz/7RjAUnp
k+myvxCUSQ2JSz4u3QBtyPVyYnYBFXrKqdKfcYyG85+yQVHBNMvrdvMCgYEAvd0C
hFpm83ha+VQp+9XN1DYZNUyqhij/E3X9jAn+gDbzlkxw/D9en2RlIQYUrI8+iI8
QKk4cfOxJYStQfxptz8QBPVeLajDN67zJ0Rk8AB50HHHcNSU8uFkaO8KxsvjBLS
+JltqfJAeraXlinbp1Fxcg9DsQdMd6cw2DmrWa8CgYEA1UjJOUzo80i4HYWDC4Vn
OEK3o22do+WqmEVLsfsG9BH5HEdGve7V3EO/6aY+1/ZXBDPvH8mRAs9v8lbeXow7
hWCiYZfB5jre8HyOU4l8dPUCmdxhJrL913rRluASSqBlet32ztuXCnWzP1X4nBj
/yF3UqFQKZ7SihcDAZVWo4sCgYEAj7al/BcNzlcynX2mldhdh583b4/LL+YCNm2Z
5eDHscZKmx8flCjRpZE8dXagPqXmwjtj6E1vDvQWP9m06VDNcThFHB+nO0tLmidSk
evmbScuiaTRmmbJf2lThY0hlqNsc7PgKF2DTkIstErOhLDFE8Z6FN6f0PiDfMcbD
Ax6L5EMCgYEA0+qhuQftKQkGdbXX9r3H8N0TVh27ByfL3kKVy0dUJMvsOaq6d97
8mEhYhrYt88f1sFsPM7G09XpCcBXwiKxw8+CDt9auD4r1snBnlLpqpMpanF4UDXH
L7s+4it+nlQy24P6g1PihtzsM+HD2UCErBiYUjDRK8Q9GGHdZojfK9Y=
-----END RSA PRIVATE KEY-----",
  "update_time": "2019-03-03 16:32:30",
  "admin_state_up": true,
  "tenant_id": "601240b9c5c94059b63d484c92cfe308",
  "expire_time": "2019-07-10 12:00:00"
},
{
  "description": null,
  "domain": "www.elb.com",
  "id": "ef4d341365754a959556576501791b19",
  "name": "certificate_28b824c8bbee419992fb7974b2911c72",
  "certificate": "-----BEGIN CERTIFICATE-----
MIIDpTCCAo2gAwIBAgIJAKdmmOBYnFvoMA0GCSqGSiB3DQEBCwUAMGkxCzAJBgNV
BAYTAh4MQswCQYDVQQIDAJ4eDELMAkGA1UEBwwCeHgxZCZAJBgNVBAoMAh4MQswCQYDVQ
```

```
CQYDVQQLDAJ4eDELMakGA1UEAwwCeHgxGTAXBqkqhkig9w0BCQEWcNh4QDE2My5j
b20wHhcNMTcxMjA0MDM0MjQ5WWhcNjAxMjAzMDM0MjQ5WjBpMQswCQYDVQQLGwJ4
eDELMakGA1UECAwCeHgxZzAJBgNVBACMAAnh4MQswCQYDVQQLDAJ4eDELMakGA1UE
CwwCeHgxZzAJBgNVBAMMANh4MRkwFwYJKoZIhvcNAQkBFgp4eEAXNjMuY29tMIIIB
ljANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAWZ5UJULAJWr7p6FVwGRQRJFN
2s8tZ/6LC3X82fajpVsYqF1xqEuUDndDXVD09E4u83MS6HO6a3bIVQDp6/klnYld
iE6Vp8HH5B5SKaCWKVG8lGWg1UM9wZFnryi14KgmpIFmCu9nA8yV/6MZAe6RSDmb
3iyNBmiZ8aZhGw2pl1YwR+15MVqFFGB+7ExkziROi7L8CFCyCezK2/oOOvQsH1dz
Q8z1JXWdg8/9Zx7Ktvgwu5PQM3cJtSHX6iBPOkMU8Z8TugLLTqQXKZOEGwajwvQ5
mf2DPkVgM08XAgALJcligWd513koAdtJd5v+9irw+5LAuO3JclqwTvwy7u/YwwID
AQABo1AwTjAdBgNVHQ4EFgQUo5A2tlu+bcUfvGTD7wmEkhXKfjcwHwYDVR0jBBgw
FoAUo5A2tlu+bcUfvGTD7wmEkhXKfjcwDAYDVR0TBAAUwAwEB/zANBgkqhkiG9w0B
AQsFAAOCAQEAWJ2rS6Mvlqk3GfEpbuezx2J3X711z8Sxoqg6ntwB+rezvK3mc9H0
83qcVeUcoH+0A0ISHyFN4FvRQL6X1hEheHarYwJK4agb231vb5erasuGO463eYEG
r45fTuOm7SyiV2xbbaBKrXJtpBp4WLL/s+LF+nkKjaOxkmxUX0sM4CTA7uFjypY
c8Tdr8lDDNqoUtMD8BrUCJi+7lmMXRcC3Qi3oZJW76ja+kZA5mKVFPd1ATih8Tba
i34R7EQDtFeiSvBdeKRsp8c0KT8H1B4IXNkkCQs2WX5p4lm99+ZLd4glw8x6ic
i1YhgnQbn5E0hz55OLu5jvOkKqJPCW+8Kg==
-----END CERTIFICATE-----",
  "type": "server",
  "create_time": "2018-09-28 03:00:47",
  "private_key": "-----BEGIN RSA PRIVATE KEY-----
MIIeowIBAAKCAQEAWZ5UJULAJWr7p6FVwGRQRJFN2s8tZ/6LC3X82fajpVsYqF1x
qEuUDndDXVD09E4u83MS6HO6a3bIVQDp6/klnYldiE6Vp8HH5B5SKaCWKVG8lGWg1
UM9wZFnryi14KgmpIFmCu9nA8yV/6MZAe6RSDmb3iyNBmiZ8aZhGw2pl1YwR+15
MVqFFGB+7ExkziROi7L8CFCyCezK2/oOOvQsH1dzQ8z1JXWdg8/9Zx7Ktvgwu5PQ
M3cJtSHX6iBPOkMU8Z8TugLLTqQXKZOEGwajwvQ5mf2DPkVgM08XAgALJcligWd5
13koAdtJd5v+9irw+5LAuO3JclqwTvwy7u/YwwIDAQABAoIBACU9S5fjD9/jTmXA
DRs08A+gGgZUxLn0xk+NAPX3LyB1tfdkCaFB8BccLzO6h3KZuwQOBPv6jkdvEdbx
Nwyw3eA/9GjSivKiHc0rejdyPymaw9I8MA7NbXHajrY7KpqDQyk6sx+aUcY5jg
iMXLWdwXYHhJ/1HVOo603oZyiS6HZeYU089NDUCX+1Sji3e5Ke0gPVXEgCq1O11/
rh24bMxnxwZ04PKBWdcMBN5Zf/4ij9vrZE+ffzW7vGBO48A5lvZxWU2U5t/OZQRtN
1uLOHmMFa0FIF2aWbTvfwUWAFsvAOKHj9Vv8BXOUwKOUUektDkfAlvrXmsFrO/H
yDeYYPkCgYEA/S55CBbR0sMXpSZ56uRn8JHApZJhgkgvYr+FqDUq/e92nAzf01P
RoEBUajwrnf1ycevN/SDfbtWzq2XJGqHwDjmtP016b7KBsC6BdRcH6dnOYh31jgA
vABMIP3wzI4zSVTyxRE8LDuboytF1mSceV5tHYPQTZNwrplDnLQhywcGyEAW8Yc
Uk/eiFr3hfH/ZohMfV5p82Qp7DNIGRzw8YtVG/3+vNXrAXW1VhugNHQY6L+zLJc
aKn84ooup0m3YcG0hviNqJuvzfsuzQgtjTXyaE0cEwsjUusOmiuj09vVx/3U7siK
Hdj21CPCvQ6Q8tdi8jV320gMs05AtaBkZdsiWUCgYEAtLw4Kk4f+xTKDFsrLUNf
75wcqhWVBiwBp7yQ7UX4EysJPKZcHMRTk0EEcAbpyaJZE3i44vjp5ReXIHNLMPs
uvl34J4Rfot0LN3n7cFrAi2+wpNo+MOBwrNzprMijGP2uKKRq4JiMjFbKV/6utGF
Up7VxfwS904JYpGgaZctilECgYA1A6nZtF0riY6ry/uAdXpZHL8ONNqRZtWoT0kD
79otSVu5iSiRbaGcXsDexC52oKrsDAgFtbqQUiEOFG09UcXfoR6HwRkba2CiDwve
yHQLQI5Qrdxz8Mk0gIrNrSM4FamcW9vi9z4kCbQyoC5C+4gqeULRpDikQBWP2Y4
2ct/bQKBgHv8qCsQTZphOxc31BJPa2xVhuv18cEU3XLURvFUZ/1f43JhLp7gynS2
ep++LkUi9D0VGXY8bqvfljBECeCu85vl8NpCXwe/LoVoln+7KaVIZMwqoGMfgNl
nEqm7HWkNxHhf8A6En/ljleuddS1sf9e/x+TJN1Xhnt9W6pe7Fk1
-----END RSA PRIVATE KEY-----",
  "update_time": "2018-09-28 03:00:47",
  "admin_state_up": true,
  "tenant_id": "601240b9c5c94059b63d484c92cfe308",
  "expire_time": "2020-12-03 03:42:49"
}
],
"instance_num": 2
}
```

## Status Code

For details, see [Status Codes](#).

## 7.9.3 Querying Details of a Certificate

### Function

This API is used to query details about a certificate.

## URI

GET /v2.0/lbaas/certificates/{certificate\_id}

**Table 7-202** Parameter description

| Parameter      | Mandatory | Type   | Description                   |
|----------------|-----------|--------|-------------------------------|
| certificate_id | Yes       | String | Specifies the certificate ID. |

## Request

None

## Response

**Table 7-203** Parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                   |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                 |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                             |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"><li>● <b>true</b>: Enabled</li><li>● <b>false</b>: Disabled</li></ul> |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                            |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                  |
| type           | String  | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"><li>● <b>server</b>: indicates the server certificate.</li><li>● <b>client</b>: indicates the CA certificate.</li></ul>           |



| Parameter   | Type   | Description                                                                                                                                                                                                                                           |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain      | String | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                  |
| private_key | String | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                    |
| certificate | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time | String | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                             |
| create_time | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                         |
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                         |

### Example Request

- Example request: Querying details of a certificate  
GET <https://{Endpoint}/v2.0/lbaas/certificates/23ef9aad4ecb463580476d324a6c71af>

### Example Response

- Example response
 

```
{
  "certificate":
  "-----BEGIN CERTIFICATE-----
  \nMIIC4TCCAcmgAwIBAgI CERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
  \nb21wYW55IENBM4XDTE4MDcwMjEzMDU0N1oXDTQ1MTExNzEzMDU0N1owFDESMBAG
  \nA1UEAwJbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
  \n0FQGzi3ucTX+DNud1p/b4XVM6I3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
  \nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh9
  \n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
  \nIAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
  \ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOTLMI28IEv0Wy
  \nYd7CMJQkS1NPJBKNOGFR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
  \nhwQKuUvJhwr/AAABMBMGA1UdJQQMMAoGCCsGAQUFBwMBMAoGCCsGSIb3DQEBcWUA
  \nA4IBAQA8IMQJxaTey7EjXtRSLVIEAMftAQPG6jjNQUVIBQYUDauDT4W2XUz5wAn
  \njiOyQ83va672K1G9s8n6xLH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
  \nezmzCwQYtHBMVQ4c7MI8554Ft1mWSt4dMAK2rzNYjvPRLYLzp1HMni6hkjPk4PCZ
  \nwKnha0dlScati9Cct3UzXSNJOSLaKdHErH08lqd+1BchScxCfk0xNITn1HZZGml
  \n+vbmunok3A2luc114rnsrbcGyqGikySN6B2cRLBDK4Y3wChiW6NVVtVqcx5/mZ
```

```
\niYsGDVN+9QBd0eYUHce+77s96i3I
\n-----END CERTIFICATE-----",
  "create_time": "2017-02-25 09:35:27",
  "expire_time": "2045-11-17 13:25:47",
  "description": "description for certificate",
  "domain": "www.elb.com",
  "id": "23ef9aad4ecb463580476d324a6c71af",
  "tenant_id": "a31d2bdcf7604c0faadb058e1e08819",
  "admin_state_up": true,
  "name": "https_certificate",
  "private_key":
"-----BEGIN PRIVATE KEY-----
\nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetv4J+B7KYwsMhRcgcJ8KcN1nfzTv12ksXITQ2o9BkpStnPe
\nbT4s32ZiJRMlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72Luna7rM
\nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8Icq39buNplgDOWzEP5AzqXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMsLHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
\nZAPYUbk1/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
\nEo04Z9H/AgMBAECCggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\nfvCArftGgMaYWPSNCRMB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSEtq8YaXngBO6vES9LMhHkNKKr
\nnciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvJTXcoU6fm7gYdHAD6jk9lc9M
\nEGpfYI6AdHIwFZcT/RNAxhP82lg2gUJSgAu66FfDjMwQXKbafkDp3zq4Up8a7Ale
\nnkrgruPtfV1vWklg+bUfhGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCZo8MKeV2jf2drlxRRwRL33SksQbzAQ/qrLdT7GP3sCGqvkvWY2FPdFyF8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjpp7dt
\nJ7n8EzkRUNE6alMHOFeeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\niWgTWHXPZxUQaYhpjXo6+LMI6DpExiDgBAkMzJGlvS7yQiYWU+wthArurbWYdGZ
\nlS6VjoTkF6r7ZolLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELG9CbKSDzKM71GyElmix/T7FnJSHIwlho1qVo6AQyduNWnAQD15pr8KAd
\nXGAZZ1FQcb3KYa+2fflERmazedOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
\n/735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nfl7FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMb6eXWmYKMJrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4CtFk9o
\nnjHjWB7pQIUypTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9lluk
\nnfaoXgjkR7p1zERiWZuFF635B4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----",
  "type": "server",
  "update_time": "2017-02-25 09:35:27"
}
```

## Status Code

For details, see [Status Codes](#).

## 7.9.4 Updating a Certificate

### Function

This API is used to update a certificate.

### URI

PUT /v2.0/lbaas/certificates/{certificate\_id}

**Table 7-204** Parameter description

| Parameter      | Mandatory | Type   | Description                   |
|----------------|-----------|--------|-------------------------------|
| certificate_id | Yes       | String | Specifies the certificate ID. |

## Request

**Table 7-205** Parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the certificate.<br>This parameter is reserved, and the default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| name           | No        | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| description    | No        | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| domain         | No        | String  | Specifies the domain name associated with the server certificate. The default value is <b>null</b> .<br>The value contains a maximum of 100 characters.<br>The value can be one of the following: <ul style="list-style-type: none"><li>• A common domain name contains 0 to 100 characters and consists of several labels separated by dots (.). Each label can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li><li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*).</li></ul> <b>NOTE</b><br>This parameter is valid only when <b>type</b> is set to <b>server</b> . |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| private_key | No        | String | Specifies the private key of the server certificate. The value must be PEM encoded. <ul style="list-style-type: none"> <li>This parameter will be ignored if <b>type</b> is set to <b>client</b>. A CA server can still be created and used normally. This parameter will be left blank even if you enter a private key that is not PEM encoded.</li> <li>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>. If you enter an invalid private key, an error is returned.</li> </ul> |
| certificate | No        | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. The public key is in PEM format.                                                                                                                                                                                                                                                                             |

## Response

**Table 7-206** Parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                  |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                            |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>This parameter is reserved. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: Enabled</li> <li><b>false</b>: Disabled</li> </ul> |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                           |

| Parameter   | Type   | Description                                                                                                                                                                                                                                           |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description | String | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                          |
| type        | String | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul>                |
| domain      | String | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                  |
| private_key | String | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                    |
| certificate | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time | String | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                             |
| create_time | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                         |
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                         |

## Example Request

- Example request: Updating a certificate

```
PUT https://{Endpoint}/v2.0/lbaas/certificates/23ef9aad4ecb463580476d324a6c71af
```

```
{
  "certificate":
  "-----BEGIN CERTIFICATE-----
  \nMIIC4TCCAcmgAwIBAgIcEREwDQYJKoZIhvcNAQELBQAwFzEVMBMGGA1UEAxMMTXID
  \nb21wYW55IENBMB4XDTE4MDcwMjEzMjU0N1oXDTE4MDcwMjEzMjU0N1owFDESMBAG
  \nA1UEAwJbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
  \n0FQGzi3ucTX+DNud1p/b4XVM6I3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
  \nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh9
```

```

\n7B9Yu9ppb2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOTLMl28IEv0WY
\nYd7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
\nhwQKuUvJhwr/AAABMBMGA1UdJQMMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBCwUA
\nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQP6GjijNQuvIBQYUDauDT4W2XUz5wAn
\njiOyQ83va672K1G9s8n6xLH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
\nznmzCwQYtHBMVQ4c7Ml8554Ft1mWst4dMAK2rzNjYvPRLYlp1HMnl6hkjPk4PCZ
\nwKnhadlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml\n
\n+vbmunok3A2lucl14rnsrckbGyqGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ
\niYsGDVN+9QBd0eYUHce+77s96i3l
\n-----END CERTIFICATE-----",
  "description": "description for certificate",
  "domain": "www.elb.com",
  "name": "https_certificate",
  "private_key":
"-----BEGIN PRIVATE KEY-----
\nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAgEAAoIBAQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetv4J+B7kYwsMhRcgdcJ8KcN1nfzTvl2ksXITQ2o9BkpStnPe
\nbT4s32ZiJRMlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLh6QoP3cq7PGWcuZKV7hd1tjCTQukwMvqV8Icq39buNplgDOWzEP5AqzXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMsLHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
\nZAPYUbkI/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
\nEo04Z9H/AgMBAECCgEAElleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\nfvfCarftGgMaYWPSNCRMB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSEtq8YaXngBO6vES9LMhHkNKKr
\nnciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
\nEGpfYI6AdHlWFzCT/RNAxhP82lg2gUJ5gAu66FfDjMwQXKbafkDp3zq4Up8a7Ale
\nkrnguPtfV1vWklg+bUfhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCZ08MKeV2jf2drLxRRwRL33SksQbzAQ/qRLd7GP3sCGqvkwWY2FPdFy8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjpp7dt
\n7n8EzkRUNE6alMHOfEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\niWgTWHXPZxUQaYhpjXo6+LMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXXOfbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELG9CbKSDzKM71GyElmix/T7FnJSHIwlho1qVo6AQyduNWnAQD15pr8KAd
\nXGAZZ1FQcb3KYa+2ffERmazedOTWjYz0tGqZnXkEeMdSLkmqlCRigWhGQKbGdak
\n/735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4ftBnUxACYocdDxtY4Vha
\nnfl7FPMdvG8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4CtFk9o
\nnjHjWB7pQlUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9lluk
\nfaoXgjkR7p1zERiWZuFF635B4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWZxuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----"
}

```

## Example Response

- Example response

```

{
  "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgIcERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMNTXID
\nb21wYW51ENBMB4XDTE4MdcwMjEzMTU0N1oXDTE4MTExNzEzMTU0N1owFDESMBAG
\nA1UEAwJbG9jYWxob3N0MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
\nDNud1p/
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDb
B8CtIgv+eyU9yYJstWx/
Bm5kWNPh9\n7B9Yu9ppb2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOTLMl28IEv0WY
\nYd7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
\nhwQKuUvJhwr/AAABMBMGA1UdJQMMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBCwUA
\nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQP6GjijNQuvIBQYUDauDT4W2XUz5wAn
\njiOyQ83va672K1G9s8n6xLH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
\nznmzCwQYtHBMVQ4c7Ml8554Ft1mWst4dMAK2rzNjYvPRLYlp1HMnl6hkjPk4PCZ
\nwKnhadlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml\n
\n+vbmunok3A2lucl14rnsrckbGyqGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----",
  "expire_time": "2045-11-17 13:25:47",

```

```
"create_time": "2017-02-25 09:35:27",
"description": "description for certificate",
"domain": "www.elb.com",
"id": "23ef9aad4ecb463580476d324a6c71af",
"admin_state_up": true,
"tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
"name": "https_certificate",
"private_key": "-----BEGIN PRIVATE KEY-----
\nMIIEvglBADANBgkqhkiG9w0BAQEFAASCBAKggwggSkAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcj8KcnX1nfzTvi2ksXITQ2o9BkpStnPe
\nbT4s32ZiJRMlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLh6QoP3cq7PGWcuZKV7hd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AzzqXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOCe/W2f8rLT1zEs0AW2Chl
\nZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
\nEo04Z9H/AgMBAAECggEAeElaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\nfvCARftGgMaYWP5NCRJRMXb7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
\nnciu9YklNehHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvTXcoU6fm7gYdHAD6jk9lc9M
\nEGpfYI6AdHlwFZcT/RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale
\nnkrgruPtfv1vWklg+bUFhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCzo8MKeV2jf2drLxRRwRL33SksQbzAQ/qrLd7GP3sCGqvKxWY2FPdFYf8kx
\nGcCeZPcleZYQAM41pjtsaM8tVbLWVR8UtGBuQoPSPH7JNF3Tm/JH/fbwjP7dt
\n7n8EzKRUNE6aIMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\nniWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fBuXh6lm8K8lQRfBpJff56p9pMwaBpDNDrpfHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHkCspAg38zJf3bGSXU/jR4eB
\n1lVQhELG9CbKsZKM71GyElmix/T7FnJSHIwlho1qVo6AQyduNWnAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fflERmazdOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
\n/735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nnfl7FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAOGBAJKD4wHW54PwD4Ctfk9o
\nnjHjWB7pQUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDJkxfciXKcsYr9lluk
\nnfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----",
"type": "server",
"update_time": "2017-02-25 09:38:27"
}
```

## Status Code

For details, see [Status Codes](#).

## 7.9.5 Deleting a Certificate

### Function

This API is used to delete a specific certificate.

### Constraints

If the target certificate is used by a listener, the certificate cannot be deleted, and 409 code will be displayed.

### URI

DELETE /v2.0/lbaas/certificates/{certificate\_id}

**Table 7-207** Parameter description

| Parameter      | Mandatory | Type   | Description                   |
|----------------|-----------|--------|-------------------------------|
| certificate_id | Yes       | String | Specifies the certificate ID. |

## Request

- Request parameters  
None

## Response

- Response parameters  
None

## Example Request

- Example request: Deleting a certificate  
DELETE https://{Endpoint}/v2.0/lbaas/certificates/23ef9aad4ecb463580476d324a6c71af

## Example Response

- Example response 1  
None

## Status Code

For details, see [Status Codes](#).



# 8 Appendix

## 8.1 Error Codes

| Status Code | Error Codes | Error Message                                    | Description                       | Solution                                                                                          |
|-------------|-------------|--------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------|
| 400         | ELB.0002    | RequestBody is null or empty,request is invalid. | The request body is empty.        | Configure the parameters by following the instructions in the Elastic Load Balance API Reference. |
| 400         | ELB.0004    | Api response is null or invaild.                 | The response is empty.            | Ensure that the backend server is healthy.                                                        |
| 400         | ELB.0230    | Tenant_id is empty.                              | The project ID is left blank.     | Correct the project ID.                                                                           |
| 400         | ELB.1000    | The loadbalancer URL is too long.                | The URL length exceeds the limit. | Correct the URL.                                                                                  |
| 400         | ELB.1001    | Request parameters invalid.                      | Invalid parameters.               | Enter valid parameters.                                                                           |
| 400         | ELB.1003    | Lb not exist.                                    | The load balancer does not exist. | Check the load balancer ID.                                                                       |
| 400         | ELB.1004    | Query condition is not valid.                    | Invalid query condition.          | Change the query condition.                                                                       |

| Status Code | Error Codes | Error Message                                                             | Description                                                                                              | Solution                             |
|-------------|-------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------|
| 400         | ELB.1005    | Update request paramters error.                                           | Failed to modify the load balancer.                                                                      | Check the parameters.                |
| 400         | ELB.1007    | Query internal ELB error.                                                 | Failed to query details of the private network load balancer.                                            | Contact customer service.            |
| 400         | ELB.1008    | There is at least one member under the lb.                                | Failed to delete the load balancer.                                                                      | Change the parameter settings.       |
| 400         | ELB.1010    | Query elb quota error.                                                    | Failed to query the quota.                                                                               | Contact customer service.            |
| 400         | ELB.1011    | Private_key or certificate content is not valid.                          | Invalid private or public key of the server certificate.                                                 | Enter a valid private or public key. |
| 400         | ELB.1012    | Create tenant resource relation error.                                    | Failed to create the relationship between resources and the user.                                        | Contact customer service.            |
| 400         | ELB.1013    | Update resource tenant allocation failed, cloud eye warning rule exceeds. | Failed to modify the quota of a resource because the quota set in the Cloud Eye alarm rule is too large. | Contact customer service.            |
| 400         | ELB.1014    | Query resouce tenant relation failed.                                     | Failed to query the relationship between resources and the user.                                         | Contact customer service.            |
| 400         | ELB.1015    | Lb can not be updated.                                                    | Failed to modify the load balancer.                                                                      | Check the parameters.                |

| Status Code | Error Codes | Error Message                                          | Description                                                                   | Solution                                                                                               |
|-------------|-------------|--------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 400         | ELB.1018    | There is at least one member under the lb.             | Failed to delete the load balancer because it has backend servers associated. | Remove the backend servers from the associated server group and delete the backend server group first. |
| 400         | ELB.1020    | Lb ID is not correct.                                  | Incorrect load balancer ID.                                                   | Change the parameter settings.                                                                         |
| 400         | ELB.1021    | Request parameters error, name invalid.                | Invalid load balancer name.                                                   | Change the name.                                                                                       |
| 400         | ELB.1025    | Update request parameters error, name is too long.     | The load balancer name exceeds the length limit.                              | Change the name.                                                                                       |
| 400         | ELB.1031    | Request parameters error, lb len description too long. | The load balancer description exceeds the length limit.                       | Change the description.                                                                                |
| 400         | ELB.1035    | Update request parameters error, name is not valid.    | Invalid load balancer name.                                                   | Change the name.                                                                                       |
| 400         | ELB.1041    | Request parameters error, lb type is not valid.        | Invalid load balancer type.                                                   | Change the parameter settings.                                                                         |
| 400         | ELB.1045    | Update request parameters error, description too long. | The load balancer description exceeds the length limit.                       | Change the description.                                                                                |

| Status Code | Error Codes | Error Message                                                       | Description                                                        | Solution                         |
|-------------|-------------|---------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------|
| 400         | ELB.1051    | Request parameters error, lb bandwidth is not valid.                | Invalid bandwidth configured for the load balancer.                | Modify the bandwidth.            |
| 400         | ELB.1061    | Request parameters error, lb vip_address and vip_subnet_id are nil. | The EIP or subnet ID is left blank.                                | Enter a valid EIP or subnet ID.  |
| 400         | ELB.1071    | Request parameters error, lb vip_address is not valid.              | Invalid EIP.                                                       | Enter a valid EIP.               |
| 400         | ELB.1081    | Request parameters error, lb vpc_id is empty.                       | The VPC ID is left blank.                                          | Enter a valid VPC ID.            |
| 400         | ELB.1101    | Vip address is exist.                                               | The EIP already exists.                                            | Enter another EIP.               |
| 400         | ELB.1110    | version not found.                                                  | The API version does not exist.                                    | Contact customer service.        |
| 400         | ELB.1201    | Get Token failed                                                    | Failed to obtain the token.                                        | Contact customer service.        |
| 400         | ELB.1202    | enterprise_project_id can not be empty                              | An error occurred during the verification of ep_id.                | Check the enterprise project ID. |
| 400         | ELB.1204    | Bind fail.                                                          | Failed to associate the load balancer with the enterprise project. | Contact customer service.        |

| Status Code | Error Codes | Error Message                                     | Description                                                             | Solution                               |
|-------------|-------------|---------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------|
| 400         | ELB.2002    | Delete member input param error.                  | Failed to remove the backend server because the parameters are invalid. | Change the parameter settings.         |
| 400         | ELB.2003    | Query member failed.                              | Failed to query the backend server.                                     | Contact customer service.              |
| 400         | ELB.2005    | Update member failed.                             | Failed to update the backend server.                                    | Contact customer service.              |
| 400         | ELB.2010    | Member listener ID length is not correct.         | The listener ID exceeds the length limit.                               | Change the listener ID.                |
| 400         | ELB.2011    | Add member listener is not exist.                 | The listener does not exist.                                            | Ensure that the listener exists.       |
| 400         | ELB.2012    | This member is not exist.                         | The backend server does not exist.                                      | Ensure that the backend server exists. |
| 400         | ELB.2020    | Member listener ID content is not correct.        | Invalid listener ID.                                                    | Change the listener ID.                |
| 400         | ELB.2021    | Request parameters error, member address is null. | Invalid backend server IP address.                                      | Check the backend server IP address.   |
| 400         | ELB.3001    | Create floating IP failed.                        | Failed to assign the EIP.                                               | Contact customer service.              |
| 400         | ELB.3002    | Delete floating IP failed.                        | Failed to release the EIP.                                              | Contact customer service.              |

| Status Code | Error Codes | Error Message                                    | Description                                              | Solution                             |
|-------------|-------------|--------------------------------------------------|----------------------------------------------------------|--------------------------------------|
| 400         | ELB.3003    | Query floating IP failed.                        | Failed to query the EIP.                                 | Contact customer service.            |
| 400         | ELB.3004    | Query floating IP list failed.                   | Failed to query EIPs.                                    | Contact customer service.            |
| 400         | ELB.4001    | Create elastic IP failed.                        | Failed to assign the EIP.                                | Contact customer service.            |
| 400         | ELB.4002    | Delete elastic IP failed.                        | Failed to release the EIP.                               | Contact customer service.            |
| 400         | ELB.4003    | Query elastic IP failed.                         | Failed to query the EIP.                                 | Contact customer service.            |
| 400         | ELB.4004    | Query elastic IP list failed.                    | Failed to query EIPs.                                    | Contact customer service.            |
| 400         | ELB.4005    | Update elastic IP failed.                        | Failed to update the EIP.                                | Contact customer service.            |
| 400         | ELB.5002    | Failed to delete the certificate.                | Failed to delete the certificate.                        | Contact customer service.            |
| 400         | ELB.5003    | Query bandwidth failed.                          | Failed to query the bandwidth.                           | Contact customer service.            |
| 400         | ELB.5004    | Invalid search criteria.                         | Invalid query condition.                                 | Change the query condition.          |
| 400         | ELB.5005    | Update bandwidth failed.                         | Failed to modify the bandwidth.                          | Contact customer service.            |
| 400         | ELB.5013    | Private_key or certificate content is not valid. | Invalid public or private key of the server certificate. | Enter a valid public or private key. |
| 400         | ELB.5020    | The certificate ID must be 32 characters.        | The certificate ID is not a 32-character string.         | Enter a valid certificate ID.        |
| 400         | ELB.5033    | Failed to update certificate.                    | Failed to modify the certificate.                        | Contact customer service.            |

| Status Code | Error Codes | Error Message                                         | Description                                 | Solution                                                                   |
|-------------|-------------|-------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------|
| 400         | ELB.5040    | The certificate does not exist.                       | The certificate does not exist.             | Ensure that the certificate exists.                                        |
| 400         | ELB.5051    | CA certificate content is not valid.                  | Invalid CA certificate body.                | Enter a valid certificate body.                                            |
| 400         | ELB.5053    | CA certificate content is not valid.                  | Invalid CA certificate body.                | Enter a valid certificate body.                                            |
| 400         | ELB.5131    | Failed to query the certificate quota.                | Failed to query the certificate quota.      | Contact customer service.                                                  |
| 400         | ELB.5141    | Failed to query the user certificate quota.           | Failed to query the used certificate quota. | Contact customer service.                                                  |
| 400         | ELB.5151    | The certificate quantity exceeds the quota.           | The certificate quota has been used up.     | Delete the certificates that are no longer used or request a higher quota. |
| 400         | ELB.6010    | Listener ID content is not correct.                   | Invalid listener ID.                        | Change the listener ID.                                                    |
| 400         | ELB.6011    | Request parameters error, listener name too long.     | The listener name exceeds the length limit. | Change the name.                                                           |
| 400         | ELB.6015    | This listener property cannot be updated              | The listener property cannot be modified.   | Select a property that can be modified.                                    |
| 400         | ELB.6021    | Request parameters error, listener name is not valid. | Invalid listener name.                      | Change the name.                                                           |

| Status Code | Error Codes | Error Message                                                       | Description                                                      | Solution                    |
|-------------|-------------|---------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------|
| 400         | ELB.6025    | Update request parameters error, listener len name too long.        | The listener name exceeds the length limit.                      | Change the name.            |
| 400         | ELB.6030    | Listener is not associated with loadbalancer id.                    | The listener does not belong to any load balancer.               | Check the listener ID.      |
| 400         | ELB.6031    | Request parameters error, listener len description too long.        | The listener description exceeds the length limit.               | Change the description.     |
| 400         | ELB.6035    | Update request parameters error, listener name is not valid.        | Invalid listener name.                                           | Change the name.            |
| 400         | ELB.6040    | The loadbalancer that the listener belongs to is not exist.         | The load balancer to which the listener is added does not exist. | Check the load balancer ID. |
| 400         | ELB.6041    | Request parameters error, listener port is not in 1 ~ 65535.        | Invalid port number.                                             | Change the port number.     |
| 400         | ELB.6045    | Update request parameters error, listener len description too long. | The listener description exceeds the length limit.               | Change the description.     |



| Status Code | Error Codes | Error Message                                                       | Description                                                            | Solution                             |
|-------------|-------------|---------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------|
| 400         | ELB.6051    | Request parameters error, listener lb algorithm is not valid.       | Invalid load balancing algorithm.                                      | Change the load balancing algorithm. |
| 400         | ELB.6061    | Request parameters error, listener protocol is not valid.           | Invalid listener protocol.                                             | Change the protocol.                 |
| 400         | ELB.6071    | Request parameters error, listener backend protocol is not valid.   | Invalid backend server protocol.                                       | Change the protocol.                 |
| 400         | ELB.6200    | Load Balancer *** already has a listener with protocol_port of ***. | The port number is in use.                                             | Change the port number.              |
| 400         | ELB.7000    | Listener_id must not be null.                                       | The listener ID is left blank.                                         | Change the listener ID.              |
| 400         | ELB.7001    | Healthcheck_interval is illegal.                                    | Invalid query condition.                                               | Change the query condition.          |
| 400         | ELB.7002    | Healthcheck delete condition is not valid.                          | Invalid query condition.                                               | Change the query condition.          |
| 400         | ELB.7004    | Healthcheck query condition is not valid.                           | Invalid query condition.                                               | Change the query condition.          |
| 400         | ELB.7010    | Healthcheck listener is not exist.                                  | The listener with which the health check is associated does not exist. | Change the listener ID.              |

| Status Code | Error Codes | Error Message                                                       | Description                                                             | Solution                    |
|-------------|-------------|---------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------|
| 400         | ELB.7014    | Healthcheck configuration not exist.                                | The health check does not exist.                                        | Check the health check ID.  |
| 400         | ELB.7020    | This healthcheck is not exist.                                      | The health check does not exist.                                        | Change the health check ID. |
| 400         | ELB.8001    | Create a SG error.                                                  | Failed to create the security group.                                    | Contact customer service.   |
| 400         | ELB.8101    | Create VPC error.                                                   | Failed to create the VPC.                                               | Contact customer service.   |
| 400         | ELB.8102    | Delete VPC error.                                                   | Failed to delete the VPC.                                               | Contact customer service.   |
| 400         | ELB.8103    | Query VPC error.                                                    | Failed to query the VPC.                                                | Contact customer service.   |
| 400         | ELB.8201    | Create subnet error.                                                | Failed to create the subnet.                                            | Contact customer service.   |
| 400         | ELB.8202    | Delete subnet error.                                                | Failed to delete the subnet.                                            | Contact customer service.   |
| 400         | ELB.8203    | Query subnet error.                                                 | Failed to query the subnet.                                             | Contact customer service.   |
| 400         | ELB.8902    | Invalid input for '%s' is not in %s.                                | Invalid input parameters.                                               | Check input parameters.     |
| 400         | ELB.8909    | Certificate with multi domain not supported by guaranteed listener. | Multiple domain certificate is not supported by dedicated loadbalancer. | Check input parameters.     |

| Status Code | Error Codes | Error Message                                                        | Description                                    | Solution                                                                                                          |
|-------------|-------------|----------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 400         | ELB.8938    | The ip member just support when pool's protocol is %s.               | Invalid input parameters.                      | Change the value of pool_id in url to other supported pool or pass parameter 'subnet_cidr_id' when create member. |
| 400         | ELB.8939    | The loadbalancer's ip_target_enable must be true when add ip member. | Invalid input parameters.                      | Disable ip target of the loadbalancer or pass parameter 'subnet_cidr_id' when create member.                      |
| 400         | ELB.8950    | Cannot allocate resource for the loadbalancer.                       | Cannot allocate resource for the loadbalancer. | Contact customer service.                                                                                         |
| 400         | ELB.8959    | The %s flavor field does not support update from %s to %s.           | Invalid input parameters when updating flavor. | Check input parameters.                                                                                           |
| 400         | ELB.9001    | Interval ELB create VM error.                                        | Failed to create the VM.                       | Contact customer service.                                                                                         |
| 400         | ELB.9002    | Internal ELB delete VM error.                                        | Failed to delete the VM.                       | Contact customer service.                                                                                         |
| 400         | ELB.9003    | Internal ELB query VM error.                                         | Failed to query details of the VM.             | Contact customer service.                                                                                         |
| 400         | ELB.9006    | Internal ELB update port fail.                                       | Failed to update the port bound to the VM.     | Contact customer service.                                                                                         |
| 400         | ELB.9007    | Internal ELB bind port fail.                                         | Failed to bind the port to the VM.             | Contact customer service.                                                                                         |

| Status Code | Error Codes | Error Message                                               | Description                                                                                                | Solution                                                                           |
|-------------|-------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 400         | ELB.9023    | Internal ELB get image error.                               | Failed to query the image.                                                                                 | Contact customer service.                                                          |
| 400         | ELB.9033    | Internal ELB get flavour error.                             | Failed to query the VM specifications.                                                                     | Contact customer service.                                                          |
| 400         | ELB.9043    | Internal ELB get interface error.                           | Failed to query the port bound to the VM.                                                                  | Contact customer service.                                                          |
| 400         | ELB.9061    | Internal ELB query topic fail.                              | Failed to query the SMN topic.                                                                             | Contact customer service.                                                          |
| 400         | ELB.9062    | Internal ELB create topic fail.                             | Failed to create the SMN topic.                                                                            | Contact customer service.                                                          |
| 400         | ELB.9063    | Internal ELB query subscription fail.                       | Failed to query the SMN subscription.                                                                      | Contact customer service.                                                          |
| 400         | ELB.9064    | Internal ELB create subscription fail.                      | Failed to create the SMN subscription.                                                                     | Contact customer service.                                                          |
| 400         | ELB.9800    | Resource could not be found.                                | The specified load balancer does not exist when ep_id is queried.                                          | Ensure that the load balancer belongs to the enterprise project.                   |
| 400         | ELB.9801    | Not be list action, enterprise_project_id must not be null. | In fine-grained authorization, the enterprise ID is not passed in the request for querying load balancers. | Ensure that the parameters in the request for querying load balancers are correct. |

| Status Code | Error Codes | Error Message                                                                 | Description                                                                               | Solution                                                                   |
|-------------|-------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 400         | ELB.9805    | RequestBody listener[protocol] is null, this is a required parameter.         | ep_id in the URI is not a valid UUID.                                                     | Check the enterprise project ID.                                           |
| 400         | ELB.9807    | Quota exceeded for resources: %s                                              | No enough quota for resource.                                                             | Contact customer to expand quota.                                          |
| 400         | ELB.9899    | Invalid parameter. For details about the error, see the returned information. | Invalid parameter. For details about the error, see the returned information.             | Please check parameters.                                                   |
| 401         | ELB.1103    | Token invalid                                                                 | Invalid token.                                                                            | Contact customer service.                                                  |
| 401         | ELB.1104    | Token invalid                                                                 | Invalid token.                                                                            | Contact customer service.                                                  |
| 401         | ELB.1105    | Token invalid                                                                 | Invalid token.                                                                            | Contact customer service.                                                  |
| 401         | ELB.1109    | Authentication failed.                                                        | Real-name authentication failed.                                                          | Contact customer service.                                                  |
| 403         | ELB.1091    | Lb number larger than quota.                                                  | The number of load balancers exceeds the quota.                                           | Request a higher quota or delete load balancers that are no longer needed. |
| 403         | ELB.1102    | Token is error, Authentication required.                                      | The token is empty.                                                                       | Enter a token that has not expired.                                        |
| 403         | ELB.2001    | Create member failed, the total amount of members exceeds the system setting. | Failed to add the backend server because the number of backend servers reaches the limit. | Check the maximum number of backend servers.                               |

| Status Code | Error Codes | Error Message                                                              | Description                                                                | Solution                                                              |
|-------------|-------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 403         | ELB.6091    | Request lb has more than user listener quota.                              | The number of listeners reaches the limit.                                 | Request a higher quota or delete listeners that are no longer needed. |
| 403         | ELB.8962    | tenant %s does not support %s.                                             | The feature is not supported.                                              | Contact customer service.                                             |
| 403         | ELB.9802    | Policy doesn't allow elb:logtanks:create to be performed.                  | Authentication failed.                                                     | Ensure that you have the permission to perform this operation.        |
| 403         | ELB.9803    | Policy doesn't allow elb:loadbalancers:list to be performed.               | Authentication failed.                                                     | Ensure that you have the permission to perform this operation.        |
| 403         | ELB.9804    | Policy doesn't allow elb:loadbalancers:list to be performed.               | Authentication failed.                                                     | Ensure that you have the permission to perform this operation.        |
| 404         | ELB.1002    | Find lb failed.                                                            | The load balancer does not exist.                                          | Change the load balancer ID.                                          |
| 404         | ELB.8904    | %s %s could not be found.                                                  | Resource could not be found.                                               | Please check the parameters.                                          |
| 409         | ELB.8905    | Quota exceeded for resources: %s                                           | No enough quota for resource.                                              | Contact customer to expand quota.                                     |
| 409         | ELB.8907    | Data conflict. For details about the error, see the returned information.  | Data conflict. For details about the error, see the returned information.  | Check your request based on the error message.                        |
| 500         | ELB.8906    | Internal error. For details about the error, see the returned information. | Internal error. For details about the error, see the returned information. | Contact customer service.                                             |

## 8.2 Status Codes

**Table 8-1** Normal status codes

| Status Code | Message    | Description                              |
|-------------|------------|------------------------------------------|
| 200         | OK         | Normal response to GET and PUT requests. |
| 201         | Created    | Normal response to POST requests.        |
| 204         | No Content | Normal response to DELETE requests.      |

**Table 8-2** Error codes

| Status Code | Message                       | Description                                                        |
|-------------|-------------------------------|--------------------------------------------------------------------|
| 400         | Bad Request                   | Invalid request URI.                                               |
|             |                               | Too long request header.                                           |
|             |                               | Invalid request body.                                              |
|             |                               | Unreleased fields in the request body.                             |
| 401         | Unauthorized                  | Authentication information unavailable in the request header.      |
|             |                               | Expired authentication information in the request header.          |
| 403         | Forbidden                     | No permissions to access APIs.                                     |
| 404         | Not Found                     | No available request URI.                                          |
|             |                               | No available requested resources.                                  |
| 405         | Method Not Allowed            | Method specified in the request not allowed.                       |
| 406         | Not Acceptable                | Responses from the server failed to be received by the client.     |
| 407         | Proxy Authentication Required | Proxy authentication required before the request can be processed. |
| 408         | Request Timeout               | Request timed out.                                                 |
| 409         | Conflict                      | Failed to complete the request due to conflicts.                   |

| Status Code | Message                                | Description                                                                                              |
|-------------|----------------------------------------|----------------------------------------------------------------------------------------------------------|
|             |                                        | The resource being accessed by another request.                                                          |
| 500         | Internal IaaS OpenStack network error. | Service internal error.                                                                                  |
|             |                                        | Server exception.                                                                                        |
| 501         | Not Implemented                        | Failed to complete the request because the server does not support the requested function.               |
| 502         | Bad Gateway                            | Failed to complete the request because the server receives an invalid response from the upstream server. |
| 503         | Service Unavailable                    | Failed to complete the request because the system is temporarily abnormal.                               |
| 504         | Gateway Timeout                        | Gateway timed out.                                                                                       |

## 8.3 Monitoring Metrics

### Overview

This section describes the namespace, the metrics that can be monitored by Cloud Eye, and dimensions of these metrics. You can use APIs provided by Cloud Eye to query the metrics of a monitored object and generated alarms.

### Namespace

SYS.ELB



## Metrics

**Table 8-3** Metrics supported by ELB

| Metric ID   | Name                   | Description                                                                                                                                                                                                                                                   | Value    | Monitored Object                                                                                                                                                                                     | Monitoring Period (Raw Data) |
|-------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| m1_cps      | Concurrent Connections | <p>Load balancing at Layer 4: total number of TCP and UDP connections from the monitored object to backend servers</p> <p>Load balancing at Layer 7: total number of TCP connections from the clients to the monitored object</p> <p>Unit: N/A</p>            | $\geq 0$ | <ul style="list-style-type: none"> <li>• Dedicated load balancer</li> <li>• Shared load balancer</li> <li>• Dedicated load balancer - listener</li> <li>• Shared load balancer - listener</li> </ul> | 1 minute                     |
| m2_act_conn | Active Connections     | <p>Number of TCP and UDP connections in the <b>ESTABLISHED</b> state between the monitored object and backend servers</p> <p>You can run the following command to view the connections (both Windows and Linux servers):<br/>netstat -an</p> <p>Unit: N/A</p> | $\geq 0$ | <ul style="list-style-type: none"> <li>• Shared load balancer - listener</li> </ul>                                                                                                                  |                              |

| Metric ID     | Name                 | Description                                                                                                                                                                                                                                                | Value          | Monitored Object | Monitoring Period (Raw Data) |
|---------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|------------------------------|
| m3_inact_conn | Inactive Connections | Number of TCP connections between the monitored object and backend servers except those in the <b>ESTABLISHED</b> state<br><br>You can run the following command to view the connections (both Windows and Linux servers):<br>netstat -an<br><br>Unit: N/A | ≥ 0            |                  |                              |
| m4_ncps       | New Connections      | Number of connections established between clients and the monitored object per second<br><br>Unit: Count/s                                                                                                                                                 | ≥ 0/<br>second |                  |                              |
| m5_in_pps     | Incoming Packets     | Number of packets received by the monitored object per second<br><br>Unit: Packet/s                                                                                                                                                                        | ≥ 0/<br>second |                  |                              |
| m6_out_pps    | Outgoing Packets     | Number of packets sent from the monitored object per second<br><br>Unit: Packet/s                                                                                                                                                                          | ≥ 0/<br>second |                  |                              |
| m7_in_Bps     | Inbound Rate         | Traffic used for accessing the monitored object from the Internet per second<br><br>Unit: byte/s                                                                                                                                                           | ≥ 0<br>bytes/s |                  |                              |

| Metric ID           | Name                               | Description                                                                                                                           | Value            | Monitored Object                                                                                                | Monitoring Period (Raw Data) |
|---------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------|
| m8_out_Bps          | Outbound Rate                      | Traffic used by the monitored object to access the Internet per second<br>Unit: byte/s                                                | $\geq 0$ bytes/s |                                                                                                                 |                              |
| m9_abnormal_servers | Unhealthy Servers                  | Number of unhealthy backend servers associated with the monitored object<br>Unit: N/A                                                 | $\geq 0$         | <ul style="list-style-type: none"> <li>Dedicated load balancer</li> <li>Shared load balancer</li> </ul>         | 1 minute                     |
| ma_normal_servers   | Healthy Servers                    | Number of healthy backend servers associated with the monitored object<br>Unit: N/A                                                   | $\geq 0$         |                                                                                                                 |                              |
| m1e_server_rps      | Reset Packets from Backend Servers | (TCP listener metrics)<br>Number of reset packets forwarded by the monitored object from backend servers to clients<br>Unit: Packet/s | $\geq 0$ /second | <ul style="list-style-type: none"> <li>Shared load balancer</li> <li>Shared load balancer - listener</li> </ul> | 1 minute                     |
| m21_client_rps      | Reset Packets from Clients         | (TCP listener metrics)<br>Number of reset packets forwarded by the monitored object from clients to backend servers<br>Unit: Packet/s | $\geq 0$ /second |                                                                                                                 |                              |
| m1f_lvs_rps         | Reset Packets from Load Balancers  | (TCP listener metrics)<br>Number of reset packets generated by the monitored object per second<br>Unit: Packet/s                      | $\geq 0$ /second |                                                                                                                 |                              |

| Metric ID         | Name                     | Description                                                                        | Value            | Monitored Object                                                                                                                                                                             | Monitoring Period (Raw Data) |
|-------------------|--------------------------|------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| m22_in_bandwidth  | Inbound Bandwidth        | Bandwidth used for accessing the monitored object from the Internet<br>Unit: bit/s | $\geq 0$ bit/s   | <ul style="list-style-type: none"> <li>Shared load balancer</li> <li>Shared load balancer - listener</li> </ul>                                                                              | 1 minute                     |
| m23_out_bandwidth | Outbound Bandwidth       | Bandwidth used by the monitored object to access the Internet<br>Unit: bit/s       | $\geq 0$ bit/s   |                                                                                                                                                                                              |                              |
| mb_l7_queries     | Layer-7 Query Rate       | Number of requests the monitored object receives per second<br>Unit: Query/s       | $\geq 0$ query/s | <ul style="list-style-type: none"> <li>Dedicated load balancer</li> <li>Shared load balancer</li> <li>Dedicated load balancer - listener</li> <li>Shared load balancer - listener</li> </ul> | 1 minute                     |
| md_l7_http_3xx    | Layer-7 3xx Status Codes | Number of 3xx status codes returned by the monitored object<br>Unit: Count/s       | $\geq 0$ /second | <ul style="list-style-type: none"> <li>Dedicated load balancer</li> <li>Shared load balancer</li> <li>Dedicated load balancer - listener</li> <li>Shared load balancer - listener</li> </ul> | 1 minute                     |

| Metric ID                | Name                              | Description                                                                                                         | Value      | Monitored Object                                                                                                                                                                                     | Monitoring Period (Raw Data) |
|--------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| mc_l7_http_2xx           | Layer-7 2xx Status Codes          | Number of 2xx status codes returned by the monitored object<br>Unit: Count/s                                        | ≥ 0/second | <ul style="list-style-type: none"> <li>• Dedicated load balancer</li> <li>• Shared load balancer</li> <li>• Dedicated load balancer - listener</li> <li>• Shared load balancer - listener</li> </ul> | 1 minute                     |
| me_l7_http_4xx           | Layer-7 4xx Status Codes          | Number of 4xx status codes returned by the monitored object<br>Unit: Count/s                                        | ≥ 0/second |                                                                                                                                                                                                      |                              |
| mf_l7_http_5xx           | Layer-7 5xx Status Codes          | Number of 5xx status codes returned by the monitored object<br>Unit: Count/s                                        | ≥ 0/second |                                                                                                                                                                                                      |                              |
| m10_l7_http_other_status | Layer-7 Other Status Codes        | Number of status codes returned by the monitored object except 2xx, 3xx, 4xx, and 5xx status codes<br>Unit: Count/s | ≥ 0/second |                                                                                                                                                                                                      |                              |
| m11_l7_http_404          | Layer-7 404 Not Found             | Number of 404 Not Found status codes returned by the monitored object<br>Unit: Count/s                              | ≥ 0/second |                                                                                                                                                                                                      |                              |
| m12_l7_http_499          | Layer-7 499 Client Closed Request | Number of 499 Client Closed Request status codes returned by the monitored object<br>Unit: Count/s                  | ≥ 0/second |                                                                                                                                                                                                      |                              |
| m13_l7_http_502          | Layer-7 502 Bad Gateway           | Number of 502 Bad Gateway status codes returned by the monitored object<br>Unit: Count/s                            | ≥ 0/second |                                                                                                                                                                                                      |                              |

| Metric ID           | Name                          | Description                                                                                                                                                                                                                                                                                                                                                                         | Value      | Monitored Object                                                                                                                  | Monitoring Period (Raw Data) |
|---------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| m14_l7_rt           | Average Layer-7 Response Time | <p>Average response time of the monitored object</p> <p>The response time starts when the monitored object receives requests from the clients and ends when it returns all responses to the clients.</p> <p>Unit: ms</p> <p><b>NOTE</b><br/>The average response time it takes to establish a WebSocket connection may be very high. This metric cannot be used as a reference.</p> | ≥ 0 ms     |                                                                                                                                   |                              |
| m15_l7_upstream_4xx | 4xx Status Codes Backend      | <p>Number of 4xx status codes returned by the monitored object</p> <p>Unit: Count/s</p>                                                                                                                                                                                                                                                                                             | ≥ 0/second | <ul style="list-style-type: none"> <li>• Dedicated load balancer</li> <li>• Shared load balancer</li> </ul>                       | 1 minute                     |
| m16_l7_upstream_5xx | 5xx Status Codes Backend      | <p>Number of 5xx status codes returned by the monitored object</p> <p>Unit: Count/s</p>                                                                                                                                                                                                                                                                                             | ≥ 0/second | <ul style="list-style-type: none"> <li>• Dedicated load balancer - listener</li> <li>• Shared load balancer - listener</li> </ul> |                              |

| Metric ID          | Name                                | Description                                                                                                                                                                                                                                                                                                                                                                                                    | Value  | Monitored Object        | Monitoring Period (Raw Data) |
|--------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------------------|------------------------------|
| m17_l7_upstream_rt | Average Server Response Time        | <p>Average response time of backend servers</p> <p>The response time starts when the monitored object routes the requests to the backend server and ends when the monitored object receives a response from the backend server.</p> <p>Unit: ms</p> <p><b>NOTE</b><br/>The average response time it takes to establish a WebSocket connection may be very high. This metric cannot be used as a reference.</p> | ≥ 0 ms |                         |                              |
| l7_con_usage       | Layer-7 Concurrent Connection Usage | <p>Ratio of HTTP and HTTPS connections established between the monitored object and backend servers per second, to the maximum number of concurrent connections allowed per second</p> <p>Unit: percent (%)</p>                                                                                                                                                                                                | ≥ 0%   | Dedicated load balancer | 1 minute                     |

| Metric ID        | Name                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Value | Monitored Object | Monitoring Period (Raw Data) |
|------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------|------------------------------|
| l7_in_bps_usage  | Layer-7 Inbound Bandwidth Usage  | <p>Ratio of the bandwidth that the monitored object uses to return response to clients over HTTP and HTTPS, to the maximum outbound bandwidth allowed</p> <p>Unit: percent (%)</p> <p><b>CAUTION</b><br/>If the inbound bandwidth usage reaches 100%, the load balancer performance has reached the upper limit. If the inbound bandwidth keeps higher than the bandwidth that the load balancer can provide, the service availability cannot be guaranteed.</p>   | ≥ 0%  |                  |                              |
| l7_out_bps_usage | Layer-7 Outbound Bandwidth Usage | <p>Ratio of the bandwidth that the monitored object uses to return response to clients over HTTP and HTTPS, to the maximum outbound bandwidth allowed</p> <p>Unit: percent (%)</p> <p><b>CAUTION</b><br/>If the outbound bandwidth usage reaches 100%, the load balancer performance has reached the upper limit. If the outbound bandwidth keeps higher than the bandwidth that the load balancer can provide, the service availability cannot be guaranteed.</p> | ≥ 0%  |                  |                              |



| Metric ID     | Name                                | Description                                                                                                                                                                                       | Value | Monitored Object        | Monitoring Period (Raw Data) |
|---------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------------------|------------------------------|
| l7_ncps_usage | Layer-7 New Connection Usage        | Ratio of HTTP and HTTPS connections established between clients and the monitored object per second, to the maximum number of new connections allowed per second<br>Unit: percent (%)             | ≥ 0%  |                         |                              |
| l7_qps_usage  | Layer 7 QPS Usage                   | Ratio of HTTP and HTTPS queries per second on the monitored object, to the maximum number of queries allowed per second<br>Unit: percent (%)                                                      | ≥ 0%  |                         |                              |
| l4_con_usage  | Layer-4 Concurrent Connection Usage | Ratio of TCP and UDP connections established between the monitored object and backend servers per second, to the maximum number of concurrent connections allowed per second<br>Unit: percent (%) | ≥ 0%  | Dedicated load balancer | 1 minute                     |

| Metric ID        | Name                             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Value | Monitored Object | Monitoring Period (Raw Data) |
|------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------|------------------------------|
| l4_in_bps_usage  | Layer-4 Inbound Bandwidth Usage  | <p>Ratio of the bandwidth that the monitored object uses to receive requests from clients over TCP and UDP, to the maximum inbound bandwidth allowed</p> <p>Unit: percent (%)</p> <p><b>CAUTION</b><br/>If the inbound bandwidth usage reaches 100%, the load balancer performance has reached the upper limit. If the inbound bandwidth keeps higher than the bandwidth that the load balancer can provide, the service availability cannot be guaranteed.</p> | ≥ 0%  |                  |                              |
| l4_out_bps_usage | Layer-4 Outbound Bandwidth Usage | <p>Ratio of the bandwidth that the monitored object uses to return response to clients over TCP and UDP, to the maximum outbound bandwidth allowed</p> <p>Unit: percent (%)</p> <p><b>CAUTION</b><br/>If the outbound bandwidth usage reaches 100%, the load balancer performance has reached the upper limit. If the outbound bandwidth keeps higher than the bandwidth that the load balancer can provide, the service availability cannot be guaranteed.</p> | ≥ 0%  |                  |                              |

| Metric ID     | Name                         | Description                                                                                                                                                                        | Value | Monitored Object | Monitoring Period (Raw Data) |
|---------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------|------------------------------|
| l4_ncps_usage | Layer-4 New Connection Usage | Ratio of TCP and UDP connections established between clients and the monitored object per second, to the maximum number of new connections allowed per second<br>Unit: percent (%) | ≥ 0%  |                  |                              |

**a:** If a service is being monitored from multiple dimensions, include all dimensions when you use APIs to query the metrics.

- Example of querying a single metric from both dimensions:  
dim.0=lbaas\_instance\_id,223e9eed-2b02-4ed2-a126-7e806a6fee1f&dim.1=lbaas\_listener\_id,3baa7335-8886-4867-8481-7cbb a967a917

- Example of querying metrics in batches from both dimensions:

```
"dimensions": [
  {
    "name": "lbaas_instance_id",
    "value": "223e9eed-2b02-4ed2-a126-7e806a6fee1f"
  },
  {
    "name": "lbaas_listener_id",
    "value": "3baa7335-8886-4867-8481-7cbb a967a917"
  }
],
```

## Dimensions

| Key               | Value                                                                                                                                                               |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lbaas_instance_id | <ul style="list-style-type: none"> <li>• ID of a dedicated load balancer</li> <li>• ID of a shared load balancer</li> </ul>                                         |
| lbaas_listener_id | <ul style="list-style-type: none"> <li>• ID of a listener added to a dedicated load balancer</li> <li>• ID of a listener added to a shared load balancer</li> </ul> |
| lbaas_pool_id     | ID of the backend server group                                                                                                                                      |

## 8.4 General Information About SharedLoad Balancers

The following information applies only to shared load balancers.

### 8.4.1 Querying Data in Pages

APIs v2.0 allow users to query data in pages by adding the limit and marker parameters to the URL of the list request. The query results are displayed in the ascending order of IDs.

- **next ref** in the response indicates the URL of the next page.
- **previous ref** in the response indicates the URL of the previous page.

#### Request

**Table 8-4** Parameter description

| Parameter    | Type   | Mandatory | Description                                                                                                                  |
|--------------|--------|-----------|------------------------------------------------------------------------------------------------------------------------------|
| limit        | int    | No        | Specifies the number of records on each page.                                                                                |
| marker       | String | No        | Specifies the resource ID of pagination query. If the parameter is left blank, only resources on the first page are queried. |
| page_reverse | Bool   | No        | Specifies the paging sequence. The value can be <b>true</b> or <b>false</b> .                                                |

#### Response

None

#### Example

- Example request  
GET /v2.0/networks?limit=2&marker=3d42a0d4-a980-4613-ae76-a2cddecff054&page\_reverse=False

- Example response

```
{
  "networks": [
    {
      "status": "ACTIVE",
      "subnets": [],
      "name": "liudongtest ",
      "admin_state_up": false,
      "tenant_id": "6fbe9263116a4b68818cf1edce16bc4f",
      "id": "60c809cb-6731-45d0-ace8-3bf5626421a9"
    },
    {
      "status": "ACTIVE",
      "subnets": [
        "132dc12d-c02a-4c90-9cd5-c31669aace04"
      ]
    }
  ]
}
```

```
    ],
    "name": "publicnet",
    "admin_state_up": true,
    "tenant_id": "6f8e9263116a4b68818cf1edce16bc4f",
    "id": "9daeac7c-a98f-430f-8e38-67f9c044e299"
  }
],
"networks_links": [
  {
    "href": "http://192.168.82.231:9696/v2.0/networks?limit=2&marker=9daeac7c-a98f-430f-8e38-67f9c044e299",
    "rel": "next"
  },
  {
    "href": "http://192.168.82.231:9696/v2.0/networks?limit=2&marker=60c809cb-6731-45d0-ace8-3bf5626421a9&page_reverse=True",
    "rel": "previous"
  }
]
}
```

## 8.4.2 Sequencing Query Results

APIs v2.0 enable the system to sort queried results based on customized keys by adding the **sort\_key** and **sort\_dir** parameters to the URL of the list request. **sort\_key** specifies the parameter used for sequencing results, and **sort\_dir** specifies whether results are displayed in ascending or descending order. These APIs allow sorting query results by multiple criteria. The number of **sort\_key** parameters must be equal to that of **sort\_dir** parameters. Otherwise, 400 status code is returned.

### Example Request

```
GET /v2.0/networks?sort_key=name&sort_dir=asc&sort_key=status&sort_dir=desc
```

### Example Response

```
{
  "networks": [
    {
      "status": "ACTIVE",
      "subnets": [],
      "name": "liudongtest ",
      "admin_state_up": false,
      "tenant_id": "6f8e9263116a4b68818cf1edce16bc4f",
      "id": "60c809cb-6731-45d0-ace8-3bf5626421a9"
    },
    {
      "status": "ACTIVE",
      "subnets": [
        "132dc12d-c02a-4c90-9cd5-c31669aace04"
      ],
      "name": "publicnet",
      "admin_state_up": true,
      "tenant_id": "6f8e9263116a4b68818cf1edce16bc4f",
      "id": "9daeac7c-a98f-430f-8e38-67f9c044e299"
    },
    {
      "status": "ACTIVE",
      "subnets": [
        "e25189a8-54df-4948-9396-d8291ffc92a0"
      ],
      "name": "testnet01",
      "admin_state_up": true,
      "tenant_id": "6f8e9263116a4b68818cf1edce16bc4f",
    }
  ]
}
```

```
    "id": "3d42a0d4-a980-4613-ae76-a2cddecff054"  
  }  
]  
}
```

### 8.4.3 Basic Workflow

The basic workflow of sharedload balancers contains the following: creating a load balancer, adding a listener to a specific load balancer, adding a backend server group to a specific listener, configuring a health check for a specific backend server group, and adding a backend server to a specific backend server group. Deletion operations include removing a backend server, deleting a health check, deleting a backend server group, deleting a listener, and deleting a load balancer.

#### Provision Resources

- Creating a load balancer
- Adding a listener to a specific load balancer
- Adding a backend server group to a specific listener
- Configuring a health check for a specific backend server group
- Adding a backend server to a specific backend server group

#### Reclaim Resources

- Removing a backend server
- Deleting a health check
- Deleting a backend server group
- Deleting a listener
- Deleting a load balancer

## 8.5 Obtaining a Project ID

A project ID is required for some URLs when an API is called. Therefore, you need to obtain a project ID in advance. The steps are as follows:

1. Obtain the token.

For details, see [Token Authentication](#).

2. Obtain a project ID.

The API for obtaining the project ID is **GET https://iam.eu-west-0.myhuaweicloud.com/v3/projects**.

Add **X-Auth-Token** to the request header and set its value to the token obtained in the preceding step.

The following is an example response. The value of **id** is the project ID to be obtained.

```
{  
  "links": {},  
  "projects": [  
    {  
      "is_domain": ,  
      "description": "",  
      "links": {},  
      "enabled": true,  
    }  
  ]  
}
```

```
    "id": "", // Project ID
    "parent_id": "",
    "domain_id": "",
    "name": ""
  },
  ...
]
}
```

# 9 Change History

---

| Released On | Description                                                                                                                                                         |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2022-08-30  | Updated the following content:<br>Added <a href="#">Dedicated Load Balancer APIs</a> .                                                                              |
| 2021-08-16  | Updated the following content:<br>Changed <b>Shared Load Balancer APIs</b> to <b>Shared Load Balancer APIs (OpenStack)</b> and moved it to <b>Historical APIs</b> . |
| 2018-12-28  | This issue is the first official release.                                                                                                                           |