

# 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 [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 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 [What Is Quota?](#)
- For more constraints, see API description.

## 1.4 Concepts

- Account  
An account is created upon successful signing up. 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

Regions are divided based on geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified into universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides specific services for specific tenants.

For details, see [Region and AZ](#).

- 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. 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.

- Enterprise Project

Enterprise projects group and manage resources across regions. Resources in different enterprise projects are logically isolated.

For details about enterprise projects and about how to obtain enterprise project IDs, see [Enterprise Management User Guide](#).



# 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   |
|------|----------------------|---|
| 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.   |

# 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 [creating an IAM User](#) 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 Regions and Endpoints. For example, the endpoint of IAM in region <b>Dublin</b> is <b>iam.myhuaweicloud.eu</b> . |
| 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> .  |

| Parameter    | Description   |
|--------------|---|
| 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. |

IAM is a global service. You can create an IAM user using the endpoint of IAM in any region. For example, to create an IAM user in the **EU-Dublin** region, obtain the endpoint of IAM (**iam.myhuaweicloud.eu**) for this region and the **resource-path** (**/v3.0/OS-USER/users**) in the URI of the API for **creating an IAM user**. Then construct the URI as follows:

```
https://iam.myhuaweicloud.eu/v3.0/OS-USER/users
```

#### 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.<br>If the resource does not exist, a new resource will be created. |

For example, in the case of the API for **creating an IAM user**, the request method is **POST**. An example request is as follows:

```
POST https://iam.myhuaweicloud.eu/v3.0/OS-USER/users
```

## 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<br>This field is mandatory for AK/SK authentication.   | code.test.com<br>or<br>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<br>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 <b>obtaining a user token</b> (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>MIIPAgYJKoZlhvc<br/>NAQcCo...ggg1B<br/>BIINPXsidG9rZ</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 following shows an example request of the API for [creating an IAM user](#) when AK/SK authentication is used:

```
POST https://iam.myhuaweicloud.eu/v3.0/OS-USER/users
Content-Type: application/json
X-Sdk-Date: 20240416T095341Z
Authorization: SDK-HMAC-SHA256 Access=*****, SignedHeaders=content-type;host;x-sdk-date,
Signature=*****
```

## (Optional) Request Body

This part is optional. A request body is generally sent in a structured format (for example, JSON or XML), which is specified by **Content-Type** in the request header. It is used to transfer content other than the request header. If the request body contains full-width characters, these characters must be coded in UTF-8.

The request body varies depending on APIs. Certain APIs do not require the request body, such as the APIs requested using the GET and DELETE methods.

The following shows an example request (a request body included) of the API for [creating an IAM user](#). You can learn about request parameters and related description from this example. The bold parameters need to be replaced for a real request.

- **accountid**: account ID of an IAM user
- **username**: name of an IAM user
- **email**: email of an IAM user
- **password**: login password of an IAM user

```
POST https://iam.myhuaweicloud.eu/v3.0/OS-USER/users
Content-Type: application/json
```

```
X-Sdk-Date: 20240416T095341Z
Authorization: SDK-HMAC-SHA256 Access=*****, SignedHeaders=content-type;host;x-sdk-date,
Signature=*****

{
  "user": {
    "domain_id": "accountid",
    "name": "username",
    "password": "*****",
    "email": "email",
    "description": "IAM User Description"
  }
}
```

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:

- 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: Requests are authenticated using tokens.

### 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.

## 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": SADMIN_PASS, //IAM user password. You are advised to store it in ciphertext in
the configuration file or an environment variable and decrypt it when needed to ensure security.
          "domain": {
            "name": "domainname" // Name of the account to which the IAM user belongs
          }
        }
      }
    },
    "scope": {
      "project": {
        "name": "xxxxxxxx" // 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://iam.myhuaweicloud.eu/v3/auth/projects
Content-Type: application/json
X-Auth-Token: ABCDEFJ....
```

## 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 [create an IAM user](#), 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 **create an IAM user**. 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 creating an IAM user

```
"X-Frame-Options": "SAMEORIGIN",
"X-IAM-ETag-id": "2562365939-d8f6f12921974cb097338ac11fceac8a",
"Transfer-Encoding": "chunked",
"Strict-Transport-Security": "max-age=31536000; includeSubdomains;",
"Server": "api-gateway",
"X-Request-Id": "af2953f2bcc67a42325a69a19e6c32a2",
"X-Content-Type-Options": "nosniff",
"Connection": "keep-alive",
"X-Download-Options": "noopen",
"X-XSS-Protection": "1; mode=block;",
"X-IAM-Trace-Id": "token_██████████_null_af2953f2bcc67a42325a69a19e6c32a2",
"Date": "Tue, 21 May 2024 09:03:40 GMT",
"Content-Type": "application/json; charset=utf8"
```

## (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 **create an IAM user**.

```
{
  "user": {
    "id": "c131886aec...",
    "name": "IAMUser",
    "description": "IAM User Description",
    "areacode": "",
    "phone": "",
    "email": "****@***.com",
    "status": null,
    "enabled": true,
    "pwd_status": false,
    "access_mode": "default",
    "is_domain_owner": false,
    "xuser_id": "",
    "xuser_type": "",
    "password_expires_at": null,
    "create_time": "2024-05-21T09:03:41.000000",
    "domain_id": "d78cbac1.....",
    "xdomain_id": "30086000.....",
    "xdomain_type": "",
    "default_project_id": null
  }
}
```

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 APIs (V3)

---

## 4.1 API Version

### 4.1.1 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 4-1 Response body parameters

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

**Table 4-2** ApiVersionInfo

| Parameter | Type   | Description  |
|-----------|--------|--|
| id        | String | Specifies the API version.<br>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.<br>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

None

## Status Codes

| Status Code | Description         |
|-------------|---------------------|
| 200         | Successful request. |

## Error Codes

See [Error Codes](#).

# 4.2 Quota

## 4.2.1 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 4-3** Path Parameters

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

## Request Parameters

**Table 4-4** 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 4-5** Response body parameters

| Parameter  | Type                         | Description   |
|------------|------------------------------|---|
| request_id | String                       | Specifies the request ID. The value is automatically generated.   |
| quota      | <a href="#">Quota</a> object | Specifies the quotas of load balancers and associated resources. Only the total quotas are returned. Remaining available quotas will not be returned. |

**Table 4-6** Quota

| Parameter  | Type   | Description               |
|------------|--------|---------------------------|
| project_id | String | Specifies the project ID. |

| Parameter            | Type    | Description  |
|----------------------|---------|--|
| 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 <b>-1</b>, 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 <b>-1</b>, 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 <b>-1</b>, 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 <b>-1</b>, the quota is not limited.</li></ul>                                  |
| condition_per_policy | Integer | Specifies the maximum number of forwarding rules per forwarding policy. <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>             |
| 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 <b>-1</b>, 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 <b>-1</b>, the quota is not limited.</li></ul>  |
| 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 maximum number 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> |

| Parameter                  | Type    | Description  |
|----------------------------|---------|--|
| listeners_per_pool         | Integer | Specifies the maximum number of backend server groups that can be associated with a listener. <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>  |
| 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 -1, the quota is not limited.</li></ul>   |
| ipgroup_bindings           | Integer | Specifies the maximum number of listeners that can be associated with an IP address group. <ul style="list-style-type: none"><li>If the value is greater than or equal to 0, it indicates the maximum number of listeners that can be associated with an IP address group.</li><li>If the value is -1, the quota is not limited.</li></ul> |
| ipgroup_max_length         | Integer | Specifies the maximum number of IP addresses that can be added to an IP address group. <ul style="list-style-type: none"><li>If the value is greater than or equal to 0, it indicates the IP address quota.</li><li>If the value is -1, 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 -1, the quota is not limited.</li></ul>   |
| listeners_per_loadbalancer | Integer | Specifies the maximum number of listeners that can be associated with a load balancer. 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>   |

## 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": "060576798a80d5762fafc01a9b5eedc7",
    "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](#).

## 4.2.2 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 4-7** Path Parameters

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



**Table 4-8** Query Parameters

| Parameter | Mandatory | Type  | Description  |
|-----------|-----------|-------|--|
| quota_key | No        | Array | 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>ipgroup_bindings</b> , or <b>ipgroup_max_length</b> .<br><br>Multiple values can be queried in the format of <i>quota_key=xxx&amp;quota_key=xxx</i> . |

## Request Parameters

**Table 4-9** 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 4-10** Response body parameters

| Parameter  | Type                              | Description   |
|------------|-----------------------------------|---|
| request_id | String                            | Specifies the request ID. The value is automatically generated. |
| quotas     | Array of <b>QuotaInfo</b> objects | Specifies the resource quotas.                                  |

**Table 4-11** 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>ipgroup_bindings</b> , or <b>ipgroup_max_length</b> .<br><b>members_per_pool</b> indicates the maximum number of backend servers that can be added to a backend server group.<br><b>ipgroup_bindings</b> indicates the maximum number of listeners that can be bound to an IP address group.<br><b>ipgroup_max_length</b> indicates the maximum number of IP addresses that can be added to an IP address 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,  
  "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](#).

## 4.3 AZ

### 4.3.1 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 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 4-12** Path Parameters

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

**Table 4-13** Query Parameters

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

## Request Parameters

**Table 4-14** 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 4-15** 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 4-16** AvailabilityZone

| Parameter           | Type             | Description   |
|---------------------|------------------|---|
| code                | String           | Specifies the AZ code.  |
| state               | String           | Specifies the AZ status. The value can only be <b>ACTIVE</b> .  |
| protocol            | Array of strings | Specifies the type of the flavor that is available. <ul style="list-style-type: none"><li>• <b>L4</b> indicates the flavor at Layer 4 (flavor for network load balancing).</li><li>• <b>L7</b> indicates the flavor at Layer 7 (flavor for application load balancing).</li></ul> |
| 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](#).

## 4.4 Load Balancer Flavor

## 4.4.1 Querying Flavors

### Function

This API is used to query all load balancer flavors that are available to a specific user in a specific region.

### 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/flavors

Table 4-17 Path Parameters

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

Table 4-18 Query Parameters

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| marker    | No        | String | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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 flavor ID.<br>Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .   |
| name         | No        | Array   | Specifies the flavor name.<br>Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .   |



| Parameter         | Mandatory | Type    | Description   |
|-------------------|-----------|---------|---|
| type              | No        | Array   | <p>Specifies the flavor type. The type can be:</p> <ul style="list-style-type: none"> <li>• <b>L4</b> indicates a Layer-4 flavor.</li> <li>• <b>L7</b> indicates a Layer-7 flavor.</li> <li>• <b>gateway</b> indicates the flavor of a gateway load balancer.</li> <li>• <b>L4_elastic</b> indicates the minimum Layer-4 flavor for elastic scaling. <b>L7_elastic</b> indicates the minimum Layer-7 flavor for elastic scaling.</li> <li>• <b>L4_elastic_max</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>L7_elastic_max</b> indicates the maximum Layer-7 flavor for elastic scaling. <b>gateway_elastic_max</b> indicates the maximum flavor for elastic scaling.</li> </ul> <p>Multiple types can be queried in the format of <i>type=xxx&amp;type=xxx</i>.</p> |
| loadbalancer_type | No        | Array   | <p>Specifies the load balancer type. The type can be:</p> <ul style="list-style-type: none"> <li>• <b>gateway</b>: indicates a gateway load balancer.</li> <li>• <b>null</b> (default): indicates other types of load balancers.</li> </ul>   |
| shared            | No        | Boolean | <p>Specifies whether the flavor is available to all users.</p> <ul style="list-style-type: none"> <li>• <b>true</b> indicates that the flavor is available to all users.</li> <li>• <b>false</b> indicates that the flavor is available only to a specific user.</li> </ul>   |

## Request Parameters

**Table 4-19** 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 4-20** Response body parameters

| Parameter  | Type                           | Description   |
|------------|--------------------------------|---|
| flavors    | Array of <b>Flavor</b> objects | Lists the flavors.  |
| page_info  | <b>PageInfo</b> object         | Shows pagination information about the load balancer flavors.   |
| request_id | String                         | Specifies the request ID. The value is automatically generated. |

**Table 4-21** Flavor

| Parameter | Type                     | Description                   |
|-----------|--------------------------|-------------------------------|
| id        | String                   | Specifies the flavor ID.      |
| info      | <b>FlavorInfo</b> object | Specifies the flavor metrics. |

| Parameter  | Type    | Description  |
|------------|---------|--|
| name       | String  | Specifies the flavor name. <ul style="list-style-type: none"><li>• L4_flavor.elb.s1.small</li><li>• L4_flavor.elb.s2.small</li><li>• L4_flavor.elb.s1.medium</li><li>• L4_flavor.elb.s2.medium</li><li>• L4_flavor.elb.s1.large</li><li>• L4_flavor.elb.s2.large</li><li>• L4_flavor.elb.pro.max</li><li>• L7_flavor.elb.s1.small</li><li>• L7_flavor.elb.s2.small</li><li>• L7_flavor.elb.s1.medium</li><li>• L7_flavor.elb.s2.medium</li><li>• L7_flavor.elb.s1.large</li><li>• L7_flavor.elb.s2.large</li><li>• L7_flavor.elb.s1.extra-large</li><li>• L7_flavor.elb.s2.extra-large</li><li>• L7_flavor.elb.pro.max</li></ul> |
| shared     | Boolean | Specifies whether the flavor is available to all users. <ul style="list-style-type: none"><li>• <b>true</b> indicates that the flavor is available to all users.</li><li>• <b>false</b> indicates that the flavor is available only to a specific user.</li></ul>  |
| project_id | String  | Specifies the project ID.  |

| Parameter           | Type    | Description  |
|---------------------|---------|--|
| type                | String  | Specifies the flavor type. The type can be: <ul style="list-style-type: none"> <li>• <b>L4</b> indicates a Layer-4 flavor.</li> <li>• <b>L7</b> indicates a Layer-7 flavor.</li> <li>• <b>gateway</b> indicates the flavor of a gateway load balancer.</li> <li>• <b>L4_elastic</b> indicates the minimum Layer-4 flavor for elastic scaling. <b>L7_elastic</b> indicates the minimum Layer-7 flavor for elastic scaling.</li> <li>• <b>L4_elastic_max</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>L7_elastic_max</b> indicates the maximum Layer-7 flavor for elastic scaling. <b>gateway_elastic_max</b> indicates the maximum flavor for elastic scaling.</li> </ul> <p>Minimum: <b>1</b><br/>Maximum: <b>32</b></p> |
| flavor_sold_out     | Boolean | Specifies the flavor is available. <ul style="list-style-type: none"> <li>• <b>true</b> indicates you can create a load balancer with this flavor.</li> <li>• <b>false</b> indicates you cannot create a load balancer with this flavor.</li> </ul>  |
| 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> .  |

**Table 4-22** FlavorInfo

| Parameter  | Type    | Description  |
|------------|---------|--|
| connection | Integer | Specifies the number of concurrent connections per second.   |
| cps        | Integer | Specifies the number of new connections per second.  |
| qps        | Integer | Specifies the number of requests per second. This parameter is available only for load balancers at Layer 7. |
| bandwidth  | Integer | Specifies the bandwidth.   |

| Parameter | Type    | Description  |
|-----------|---------|--|
| lcu       | Integer | Specifies the number of LCUs in the flavor. An LCU measures the dimensions on which a dedicated load balancer routes the traffic. The higher value indicates better performance. |
| https_cps | Integer | Specifies the number of new HTTPS connections. This parameter is available only for load balancers at Layer 7.   |

**Table 4-23** PageInfo

| Parameter           | Type    | Description  |
|---------------------|---------|--|
| previous_mar<br>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 load balancer flavors

```
GET https://{ELB_Endpoint}/v3/057ef081eb00d2732fd1c01a9be75e6f/elb/flavors?
limit=2&marker=179568ef-5ba4-4ca0-8c5e-5d581db779b1
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "request_id" : "01e84c2750b7217e5903b3d3bc9a9fda",
  "flavors" : [ {
    "name" : "L7_flavor.basic.elb.s1.small",
    "shared" : true,
    "project_id" : "060576798a80d5762fafc01a9b5eedc7",
    "info" : {
      "bandwidth" : 50000,
      "connection" : 200000,
      "cps" : 2000,
      "https_cps" : 200,
      "lcu" : 10,
      "qps" : 4000
    },
    "id" : "037418d4-8c9e-40b8-9e54-70ff4848fd82",
    "type" : "L7_basic",
    "flavor_sold_out" : false
  }, {
    "name" : "L4_flavor.elb.s2.small",
    "shared" : true,
    "project_id" : "8d53f081ea2444aa95e2bfa942ef6ee",
```

```
"info" : {
  "bandwidth" : 100000,
  "connection" : 1000000,
  "cps" : 20000,
  "lcu" : 20
},
"id" : "03925294-4ae2-4cdb-b912-cf171e782095",
"type" : "L4",
"flavor_sold_out" : false
}],
"page_info" : {
  "next_marker" : "03925294-4ae2-4cdb-b912-cf171e782095",
  "previous_marker" : "037418d4-8c9e-40b8-9e54-70ff4848fd82",
  "current_count" : 2
}
}
```

## Status Codes

| Status Code | Description         |
|-------------|---------------------|
| 200         | Successful request. |

## Error Codes

See [Error Codes](#).

## 4.4.2 Viewing Details of a Flavor

### Function

This API is used to view details of a flavor.

### Calling Method

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

### URI

GET /v3/{project\_id}/elb/flavors/{flavor\_id}

**Table 4-24** Path Parameters

| Parameter  | Mandatory | Type   | Description               |
|------------|-----------|--------|---------------------------|
| project_id | Yes       | String | Specifies the project ID. |
| flavor_id  | Yes       | String | Specifies the flavor ID.  |

## Request Parameters

**Table 4-25** 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 4-26** Response body parameters

| Parameter  | Type                 | Description   |
|------------|----------------------|---|
| request_id | String               | Specifies the request ID. The value is automatically generated. |
| flavor     | <b>Flavor</b> object | Specifies the flavor.   |

**Table 4-27** Flavor

| Parameter | Type                     | Description                   |
|-----------|--------------------------|-------------------------------|
| id        | String                   | Specifies the flavor ID.      |
| info      | <b>FlavorInfo</b> object | Specifies the flavor metrics. |

| Parameter  | Type    | Description  |
|------------|---------|--|
| name       | String  | <p>Specifies the flavor name.</p> <ul style="list-style-type: none"> <li>• L4_flavor.elb.s1.small</li> <li>• L4_flavor.elb.s2.small</li> <li>• L4_flavor.elb.s1.medium</li> <li>• L4_flavor.elb.s2.medium</li> <li>• L4_flavor.elb.s1.large</li> <li>• L4_flavor.elb.s2.large</li> <li>• L4_flavor.elb.pro.max</li> <li>• L7_flavor.elb.s1.small</li> <li>• L7_flavor.elb.s2.small</li> <li>• L7_flavor.elb.s1.medium</li> <li>• L7_flavor.elb.s2.medium</li> <li>• L7_flavor.elb.s1.large</li> <li>• L7_flavor.elb.s2.large</li> <li>• L7_flavor.elb.s1.extra-large</li> <li>• L7_flavor.elb.s2.extra-large</li> <li>• L7_flavor.elb.pro.max</li> </ul> |
| shared     | Boolean | <p>Specifies whether the flavor is available to all users.</p> <ul style="list-style-type: none"> <li>• <b>true</b> indicates that the flavor is available to all users.</li> <li>• <b>false</b> indicates that the flavor is available only to a specific user.</li> </ul>  |
| project_id | String  | Specifies the project ID.  |



| Parameter           | Type    | Description  |
|---------------------|---------|--|
| type                | String  | Specifies the flavor type. The type can be: <ul style="list-style-type: none"> <li>• <b>L4</b> indicates a Layer-4 flavor.</li> <li>• <b>L7</b> indicates a Layer-7 flavor.</li> <li>• <b>gateway</b> indicates the flavor of a gateway load balancer.</li> <li>• <b>L4_elastic</b> indicates the minimum Layer-4 flavor for elastic scaling. <b>L7_elastic</b> indicates the minimum Layer-7 flavor for elastic scaling.</li> <li>• <b>L4_elastic_max</b> indicates the maximum Layer-4 flavor for elastic scaling. <b>L7_elastic_max</b> indicates the maximum Layer-7 flavor for elastic scaling. <b>gateway_elastic_max</b> indicates the maximum flavor for elastic scaling.</li> </ul> Minimum: <b>1</b><br>Maximum: <b>32</b> |
| flavor_sold_out     | Boolean | Specifies the flavor is available. <ul style="list-style-type: none"> <li>• <b>true</b> indicates you can create a load balancer with this flavor.</li> <li>• <b>false</b> indicates you cannot create a load balancer with this flavor.</li> </ul>  |
| 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> .  |

**Table 4-28** FlavorInfo

| Parameter  | Type    | Description  |
|------------|---------|--|
| connection | Integer | Specifies the number of concurrent connections per second.   |
| cps        | Integer | Specifies the number of new connections per second.  |
| qps        | Integer | Specifies the number of requests per second. This parameter is available only for load balancers at Layer 7. |
| bandwidth  | Integer | Specifies the bandwidth.   |

| Parameter | Type    | Description  |
|-----------|---------|--|
| lcu       | Integer | Specifies the number of LCUs in the flavor. An LCU measures the dimensions on which a dedicated load balancer routes the traffic. The higher value indicates better performance. |
| https_cps | Integer | Specifies the number of new HTTPS connections. This parameter is available only for load balancers at Layer 7.   |

## Example Requests

Querying details of a flavor

```
GET https://{ELB_Endpoint}/v3/{project_id}/elb/flavors/{flavor_id}
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "flavor" : {
    "shared" : true,
    "project_id" : "8d53f081ea24444aa95e2bfa942ef6ee",
    "info" : {
      "bandwidth" : 10000000,
      "connection" : 8000000,
      "cps" : 80000,
      "qps" : 160000,
      "lcu" : 100
    },
    "id" : "3588b525-63ed-4b8f-8a03-6aaa9ad1c36a",
    "name" : "L7_flavor.slb.s2.large",
    "type" : "L7",
    "flavor_sold_out" : false
  },
  "request_id" : "3b9fb516-b7bb-4760-9128-4a23dd36ae10"
}
```

## Status Codes

| Status Code | Description         |
|-------------|---------------------|
| 200         | Successful request. |

## Error Codes

See [Error Codes](#).

## 4.5 Reserved IP Address

### 4.5.1 Calculating the Number of Reserved IP Addresses

#### Function

This API is used to calculate the number of reserved IP addresses in the following scenarios:

- Calculate the number of IP addresses required for adding the first HTTP or HTTPS listener to a dedicated load balancer: **loadbalancer\_id** is passed, **l7\_flavor\_id** is left blank, and **ip\_target\_enable** is not passed or is set to **false**.
- Calculate the number of IP addresses required for changing the flavors of a dedicated load balancer or enabling **IP as a Backend** for a dedicated load balancer: **loadbalancer\_id** is passed, and **l7\_flavor\_id** is not left blank or **ip\_target\_enable** is set to **true**.
- Calculate the number of IP addresses required for creating a dedicated load balancer: **availability\_zone\_id** is passed, **parameters l7\_flavor\_id**, **ip\_target\_enable**, and **ip\_version** are optional, and **loadbalancer\_id** is not passed.

Note:

- The number of reserved IP addresses in the query result is greater than that of the actually used IP addresses.
- The number of reserved IP addresses is the number of IP addresses used by a dedicated load balancer.

#### Calling Method

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

#### URI

GET /v3/{project\_id}/elb/preoccupy-ip-num

**Table 4-29** Path Parameters

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

**Table 4-30** Query Parameters

| Parameter        | Mandatory | Type    | Description  |
|------------------|-----------|---------|--|
| l7_flavor_id     | No        | String  | <p>Specifies the ID of the load balancer flavor at Layer 7.</p> <p>If this parameter is passed, the number of reserved IP addresses required for creating a dedicated load balancer with a Layer-7 flavor or for changing the Layer 7 flavor of a dedicated load balancer will be calculated.</p> <p>Application scenarios: creating a dedicated load balancer with a Layer-7 flavor or changing the Layer 7 flavors of a dedicated load balancer</p>  |
| ip_target_enable | No        | Boolean | <p>Specifies whether to enable <b>IP as a Backend</b>.</p> <ul style="list-style-type: none"><li>• <b>true</b>: The number of reserved IP addresses required for creating a dedicated load balancer with <b>IP as a Backend</b> enabled or for enabling <b>IP as a Backend</b> for an existing dedicated load balancer will be calculated.</li><li>• <b>false</b>: The number of reserved IP addresses required for creating a dedicated load balancer with <b>IP as a Backend</b> disabled or for disabling <b>IP as a Backend</b> for an existing dedicated load balancer will be calculated. If this parameter is not passed, <b>IP as a Backend</b> is disabled.</li></ul> <p>Application scenarios: creating a dedicated load balancer or changing the flavors of a dedicated load balancer</p> |

| Parameter            | Mandatory | Type    | Description   |
|----------------------|-----------|---------|---|
| ip_version           | No        | Integer | <p>Specifies the IP address version of the load balancer. The value can be <b>4</b> or <b>6</b>.</p> <ul style="list-style-type: none"><li>• <b>4</b>: The number of reserved IPv4 addresses required for creating a dedicated load balancer will be calculated.</li><li>• <b>6</b>: The number of reserved IPv6 addresses required for creating a dedicated load balancer will be calculated.</li></ul> <p>Application scenario: creating a dedicated load balancer.</p> |
| loadbalancer_id      | No        | String  | <p>Specifies the load balancer ID. The number of reserved IP addresses required for changing the flavors of a dedicated load balancer or for adding the first HTTP or HTTPS listener to a dedicated load balancer will be calculated.</p> <p>Application scenario: changing the flavors of a dedicated load balancer or adding the first HTTP or HTTPS listener to a dedicated load balancer</p>  |
| availability_zone_id | No        | Array   | <p>Calculates the number of reserved IP addresses required for creating a dedicated load balancer in the AZs specified by <b>availability_zone_id</b>.</p> <p>Application scenario: creating a dedicated load balancer</p> <p>Constraint: This parameter will not take effect when <b>loadbalancer_id</b> is passed.</p>  |

## Request Parameters

Table 4-31 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 4-32 Response body parameters

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

Table 4-33 PreoccupyIp

| Parameter | Type    | Description                                       |
|-----------|---------|---|
| total     | Integer | Specifies the number of preoccupied IP addresses. |

## Example Requests

- Querying the number of reserved IP addresses required for changing the Layer 7 flavor of a dedicated load balancer

```
https://{ELB_Endpoint}/v3/060576782980d5762f9ec014dd2f1148/elb/preoccupy-ip-num?loadbalancer_id=aff4fc31-d635-4f59-a862-edadf32e407d&l7_flavor_id=0051bc4c-a562-4b7c-953b-a250b51d992b
```

```
{  "preoccupy_ip" : {    "total" : 6  },  "request_id" : "8844e9a0-6a2d-44b7-aad9-15a7f75e4059"}
```

- Querying the number of reserved IP addresses required for creating a dedicated load balancer that is deployed in two AZs and has **IP as a Backend** enabled

```
GET /v3/{project_id}/elb/preoccupy-ip-num?l7_flavor_id=8278944d-f92c-4393-82b2-6fb9cc1d7e53&availability_zone_id=az1&availability_zone_id=az2&ip_target_enable=true
```

```
{
  "preoccupy_ip" : {
    "total" : 20
  },
  "request_id" : "63388ec8-fa3c-4c99-b9c8-d2c83b2a9a68"
}
```

- Querying the number of reserved IP addresses required for adding the first HTTP or HTTPS listener to a dedicated load balancer

GET /v3/{project\_id}/elb/preoccupy-ip-num?loadbalancer\_id=aff4fc31-d635-4f59-a862-edadf32e407d

```
{
  "preoccupy_ip" : {
    "total" : 2
  },
  "request_id" : "febfce48-318d-45ba-a9d9-855462123f3b"
}
```

## Example Responses

**Status code: 200**

Successful request.

```
{
  "preoccupy_ip" : {
    "total" : 20
  },
  "request_id" : "63388ec8-fa3c-4c99-b9c8-d2c83b2a9a68"
}
```

## Status Codes

| Status Code | Description         |
|-------------|---------------------|
| 200         | Successful request. |

## Error Codes

See [Error Codes](#).

# 4.6 Load Balancer

## 4.6.1 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.
- Specify **l4\_flavor\_id** if you want to create a network load balancer and **l7\_flavor\_id** to create an application load balancer. Specify both **l4\_flavor\_id** and **l7\_flavor\_id** if you want to create a load balancer that can work at both Layer 4 and Layer 7.
- Specify **prepaid\_options** if you want to create a yearly/monthly load balancer.
- If **prepaid\_options** is not specified, pay-per-use load balancers will be created, which are billed by fixed specifications or elastic specifications you have selected for **l4\_flavor\_id** and **l7\_flavor\_id** when creating the load balancer.
- Set **loadbalancer\_type** to **gateway** if you want to create a gateway load balancer. **vip\_address** and **ipv6\_vip\_address** are not supported by gateway load balancers. **vip\_subnet\_cidr\_id** and **ipv6\_subnet\_cidr\_id** cannot be left blank at the same time, You cannot bind an EIP to gateway load balancers. Specify **gw\_flavor\_id** if you need a given flavor.

## 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 4-34** Path Parameters

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

## Request Parameters

**Table 4-35** Request header parameters

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

**Table 4-36** Request body parameters

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

**Table 4-37** CreateLoadBalancerOption

| Parameter  | Mandatory | Type   | Description  |
|------------|-----------|--------|--|
| project_id | No        | String | Specifies the project ID.<br>Minimum: <b>1</b><br>Maximum: <b>32</b> |

| Parameter   | Mandatory | Type   | Description   |
|-------------|-----------|--------|---|
| name        | No        | String | Specifies the load balancer name.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>   |
| description | No        | String | Provides supplementary information about the load balancer.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>   |
| vip_address | No        | String | 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.<br>Note: <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> <li>• <b>vip_address</b> cannot be passed for gateway load balancers.</li> </ul> The IP address must be in [0-255].[0-255].[0-255].[0-255] format, for example, 192.168.1.1. |

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

| Parameter             | Mandatory | Type   | Description   |
|-----------------------|-----------|--------|---|
| ipv6_vip_virsubnet_id | No        | String | <p>Specifies the ID of the frontend IPv6 subnet where the load balancer resides.</p> <p>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>Note:</p> <ul style="list-style-type: none"> <li>• This parameter is mandatory if you need to create a load balancer with a private IPv6 address.</li> <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> <li>• <b>vip_subnet_cidr_id</b> and <b>ipv6_vip_virsubnet_id</b> cannot be left blank at the same time when you create gateway load balancers.</li> </ul> <p>The ID must be in UUID format and can contain up to 36 characters.</p> |
| 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><br/>Maximum: <b>255</b></p>  |

| Parameter    | Mandatory | Type   | Description  |
|--------------|-----------|--------|--|
| l4_flavor_id | No        | String | <p>Specifies the flavor ID of a network load balancer.</p> <p>You can query parameter <b>id</b> in the response by calling the API (GET https://{ELB_Endpoint}/v3/{project_id}/elb/flavors?type=L4).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If neither <b>l4_flavor_id</b> nor <b>l7_flavor_id</b> is specified, the default flavor is used. The default flavor varies depending on the sites.</li> <li>• If <b>l4_flavor_id</b> is specified, the load balancer is billed by fixed specifications.</li> <li>• If <b>L4_elastic_max</b> is specified, the load balancer is billed by how many LCUs you use.</li> <li>• <b>l4_flavor_id</b> is not supported by gateway load balancers.</li> </ul> <p>The ID must be in UUID format and can contain up to 36 characters.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>36</b></p> |

| Parameter    | Mandatory | Type   | Description  |
|--------------|-----------|--------|--|
| l7_flavor_id | No        | String | <p>Specifies the flavor ID of an applicaiton load balancer.</p> <p>You can query parameter <b>id</b> in the response by calling the API (GET https:// {ELB_Endpoint}/v3/ {project_id}/elb/flavors? type=L7).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If neither <b>l4_flavor_id</b> nor <b>l7_flavor_id</b> is specified, the default flavor is used. The default flavor varies depending on the sites.</li> <li>• If <b>l7_flavor_id</b> is specified, the load balancer is billed by fixed specifications.</li> <li>• If <b>L7_elastic_max</b> is specified, the load balancer is billed by how many LCUs you use.</li> <li>• <b>l7_flavor_id</b> is not supported by gateway load balancers.</li> </ul> <p>The ID must be in UUID format and can contain up to 36 characters.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>36</b></p> |
| gw_flavor_id | No        | String | <p>Specifies the flavor ID of the gateway load balancer. If <b>gw_flavor_id</b> is not specified, the default flavor is used. The default flavor varies by site.</p> <p>Minimum: <b>1</b><br/>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>  |
| loadbalancer_type | No        | String  | <p>Specifies the load balancer type. The type can be:</p> <ul style="list-style-type: none"> <li>• <b>gateway</b>: indicates a gateway load balancer.</li> <li>• <b>null</b> (default): indicates other types of load balancers.</li> </ul>  |
| 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> <p>The ID must be in UUID format and can contain up to 36 characters.</p> |

| Parameter              | Mandatory | Type                        | Description  |
|------------------------|-----------|-----------------------------|--|
| availability_zone_list | Yes       | Array of strings            | 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.         |
| 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.<br>Example: <b>"tags": [{"key": "my_tag", "value": "my_tag_value"}]</b>   |
| admin_state_up         | No        | Boolean                     | Specifies whether to enable the load balancer. <ul style="list-style-type: none"> <li><b>true</b> (default): indicates the load balancer is enabled.</li> <li><b>false</b>: indicates the load balancer is disabled.</li> </ul> The value must be in the Boolean type.                                       |
| 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.                      |



| Parameter    | Mandatory | Type  | Description   |
|--------------|-----------|---|---|
| publicip_ids | No        | Array of strings  | <p>Specifies the ID of the EIP the system will automatically assign and bind to the load balancer during load balancer creation.</p> <p>Only the first EIP will be bound to the load balancer although multiple EIP IDs can be set.</p> <p>This parameter is not supported by gateway load balancers.</p> |
| publicip     | No        | <a href="#">CreateLoadBalancerPublicIpOption</a> 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>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> <p>If this parameter is not specified, select subnets as follows:</p> <ul style="list-style-type: none"> <li>• If IPv6 is enabled for a load balancer, the ID of subnet specified in <b>ipv6_vip_virsubnet_id</b> will be used.</li> <li>• If IPv4 is enabled for a load balancer, the ID of subnet specified in <b>vip_subnet_cidr_id</b> will be used.</li> <li>• If only public network is available for a load balancer, the ID of any subnet in the VPC where the load balancer resides will be used. Subnets with more IP addresses are preferred.</li> </ul> <p>If there is more than one subnet, the first subnet in the list will be used.</p> <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> |

| Parameter                  | Mandatory | Type    | Description   |
|----------------------------|-----------|---------|---|
| ip_target_enable           | No        | Boolean | <p>Specifies whether to add backend servers that are not in the load balancer's VPC.</p> <p>If you enable this function, you can add servers in a peer VPC connected through a VPC peering connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses. This parameter is not supported by gateway load balancers. The value can be <b>true</b> (IP as a Backend enabled) or <b>false</b> (IP as a Backend disabled).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>The value can only be updated to <b>true</b>.</li> </ul> |
| 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><br/>Disable deletion protection before deleting your resources.</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   | <p>Specifies the IPv6 address bound to the load balancer.</p> <p>Constraints:</p> <ul style="list-style-type: none"> <li>The IPv6 address must be one in the subnet defined by <b>ipv6_vip_virsubnet_id</b>.</li> <li>Subnets defined by <b>elb_virsubnet_ids</b> must support IPv4/IPv6 dual stack.</li> <li><b>ipv6_vip_virsubnet_id</b> is not supported by gateway load balancers.</li> </ul>  |

**Table 4-38** 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 4-39** BandwidthRef

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

**Table 4-40** 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).<br>The default value is <b>4</b> .<br>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> .<br>Minimum: <b>1</b><br>Maximum: <b>36</b> |
| billing_info | No        | String   | Provides billing information about the EIP.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>1024</b>  |
| description  | No        | String   | Provides supplementary information about the EIP.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| bandwidth    | Yes       | <a href="#">CreateLoadBalancerBandwidthOption</a> object | Provides supplementary information about the bandwidth.   |

**Table 4-41** 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><br/>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><br/>Maximum: <b>99999</b></p> |

| Parameter    | Mandatory | Type   | Description   |
|--------------|-----------|--------|---|
| charge_mode  | No        | String | Specifies how the bandwidth used by the EIP is billed.<br>Currently, the bandwidth can be billed only by <b>traffic</b> .<br>This parameter is mandatory if <b>id</b> is set to <b>null</b> .<br>Minimum: <b>1</b><br>Maximum: <b>36</b>  |
| share_type   | No        | String | Specifies the bandwidth type. <ul style="list-style-type: none"><li>• <b>PER</b>: indicates dedicated bandwidth.</li><li>• <b>WHOLE</b>: indicates shared bandwidth.</li></ul> Note: <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 | Specifies bandwidth billing information.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>1024</b>   |
| id           | No        | String | Specifies the ID of the shared bandwidth to which the IP address bound to the load balancer is added.<br>Note: <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> Minimum: <b>1</b><br>Maximum: <b>36</b>   |

**Table 4-42** CreateLoadbalancerAutoscalingOption

| Parameter        | Mandatory | Type    | Description  |
|------------------|-----------|---------|--|
| enable           | Yes       | Boolean | Specifies whether to enable elastic scaling for the load balancer.<br><br>This parameter is not supported by gateway load balancers. Please do not use it. The value can be <b>true</b> (elastic scaling enabled) or <b>false</b> (elastic scaling disabled).<br><br>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.<br><br>Minimum: <b>1</b><br>Maximum: <b>36</b>   |

## Response Parameters

Status code: 201

**Table 4-43** Response body parameters

| Parameter       | Type                                | Description  |
|-----------------|-------------------------------------|--|
| loadbalancer    | <a href="#">LoadBalancer</a> object | Specifies the load balancer.   |
| loadbalancer_id | String                              | Specifies the load balancer ID.<br><br>This parameter is unsupported. Please do not use it.<br><br>Minimum: <b>0</b><br>Maximum: <b>36</b> |
| order_id        | String                              | Specifies the order No.<br><br>This parameter is unsupported. Please do not use it.<br><br>Minimum: <b>0</b><br>Maximum: <b>36</b>         |



| Parameter  | Type   | Description  |
|------------|--------|--|
| request_id | String | Specifies the request ID. The value is automatically generated.<br>Minimum: <b>0</b><br>Maximum: <b>36</b> |

**Table 4-44** LoadBalancer

| Parameter           | Type                                | Description   |
|---------------------|-------------------------------------|---|
| id                  | String                              | Specifies the load balancer ID.   |
| description         | String                              | Provides supplementary information about the load balancer.<br>Minimum: <b>1</b><br>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.  |

| 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                                | Specifies the enterprise project ID.<br>If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project.<br>"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.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>1024</b>  |
| l4_flavor_id          | String                                | Specifies the ID of a flavor at Layer 4.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l4_scale_flavor_id    | String                                | Specifies the ID of the reserved flavor at Layer 4.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| l7_flavor_id          | String                                | Specifies the ID of a flavor at Layer 7.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l7_scale_flavor_id    | String                                | Specifies the ID of the reserved flavor at Layer 7.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| publicips             | Array of <b>PublicIpInfo</b> objects  | Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer.<br>This parameter has the same meaning as <b>eips</b> .  |
| global_eips           | Array of <b>GlobalEipInfo</b> objects | Specifies the global EIP bound to the load balancer. Only the first global EIP specified under <b>global_eips</b> will be bound.<br>This parameter is unsupported. Please do not use it.   |

| Parameter                  | Type                       | Description  |
|----------------------------|----------------------------|--|
| elb_virsubnet_ids          | Array of strings           | Lists the IDs of subnets on the downstream plane.  |
| elb_virsubnet_type         | 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>  |
| ip_target_enable           | Boolean                    | Specifies whether to enable the IP as a Backend option.<br>If you enable this function, you can add servers in a peer VPC connected through a VPC peering connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.<br>The value can be <b>true</b> (enable <b>IP as a Backend</b> ) or <b>false</b> (disable <b>IP as a Backend</b> ).<br>Note: <ul style="list-style-type: none"> <li>● The value can only be updated to <b>true</b>.</li> </ul> |
| frozen_scene               | String                     | Specifies the scenario where the load balancer is frozen. Multiple values are separated using commas (.).<br>This parameter is unsupported. Please do not use it.  |
| 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 deletion protection is enabled. <ul style="list-style-type: none"> <li>● <b>false</b>: Deletion protection is not enabled.</li> <li>● <b>true</b>: Deletion protection is enabled.</li> </ul> <b>NOTE</b><br>Disable deletion protection for all your resources before deleting your account.<br>This parameter is returned only when deletion protection is enabled at the site.<br>This parameter is unsupported. Please do not use it.  |

| 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.<br><br>Note:<br><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.  |
| waf_failure_action  | String                                | Specifies traffic distributing policies when the WAF is faulty.<br><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.<br>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 4-45** PoolRef

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

**Table 4-46** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-47** Tag

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

**Table 4-48** 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 4-49** 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 4-50** 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 4-51** BandwidthRef

| Parameter | Type   | Description                        |
|-----------|--------|------------------------------------|
| id        | String | Specifies the shared bandwidth ID. |

**Table 4-52** 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.<br>Minimum: <b>1</b><br>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 3: Creating a gateway load balancer

POST https://{ELB\_Endpoint}/v3/060576798a80d5762fafc01a9b5eedc7/elb/loadbalancers

```
{
  "loadbalancer" : {
    "name" : "loadbalancer",
    "description" : "simple gateway lb",
    "loadbalancer_type" : "gateway",
    "gw_flavor_id" : "2e859438-7cbb-417b-8f3b-5f618ca76a52",
    "vip_subnet_cidr_id" : "1992ec06-f364-4ae3-b936-6a8cc24633b7",
    "ipv6_vip_virsubnet_id" : "8e7aac33-0d87-4cb2-9cce-2856615d607f",
    "admin_state_up" : true,
    "availability_zone_list" : [ "AZ1" ]
  }
}
```

## 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_virsubnet_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_virsubnet_ids" : [ ],
    "elb_virsubnet_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](#).

## 4.6.2 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 4-53** Path Parameters

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

**Table 4-54** Query Parameters

| Parameter    | Mandatory | Type    | Description   |
|--------------|-----------|---------|---|
| marker       | No        | String  | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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.<br>Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .  |
| name                | No        | Array   | Specifies the load balancer name.<br>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.<br>Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xxx</i> .   |
| admin_state_up      | No        | Boolean | Specifies whether to enable the load balancer. <ul style="list-style-type: none"> <li>• <b>true</b>: indicates the load balancer is enabled.</li> <li>• <b>false</b>: indicates the load balancer is disabled.</li> </ul> The value must be in the Boolean type.  |
| 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> . |

| Parameter         | Mandatory | Type    | Description   |
|-------------------|-----------|---------|---|
| operating_status  | No        | Array   | <p>Specifies the operating status of the load balancer.</p> <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> <p>Multiple operating statuses can be queried in the format of <i>operating_status=xxx&amp;operating_status=xxx</i>.</p> |
| guaranteed        | No        | Boolean | <p>Specifies whether the load balancer is a dedicated load balancer.</p> <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> <p>Only dedicated load balancers is supported. The value is fixed at <b>true</b>.</p>       |
| loadbalancer_type | No        | String  | <p>Specifies the load balancer type. The type can be:</p> <ul style="list-style-type: none"> <li>● <b>gateway</b>: indicates a gateway load balancer.</li> <li>● <b>null</b> (default): indicates other types of load balancers.</li> </ul>   |
| vpc_id            | No        | Array   | <p>Specifies the ID of the VPC where the load balancer resides.</p> <p>Multiple IDs can be queried in the format of <i>vpc_id=xxx&amp;vpc_id=xxx</i>.</p>   |
| vip_port_id       | No        | Array   | <p>Specifies the ID of the port bound to the private IPv4 address of the load balancer.</p> <p>Multiple IDs can be queried in the format of <i>vip_port_id=xxx&amp;vip_port_id=xxx</i>.</p>   |

| Parameter             | Mandatory | Type  | Description   |
|-----------------------|-----------|-------|---|
| vip_address           | No        | Array | Specifies the virtual IP address bound to the load balancer.<br>Multiple virtual IP addresses can be queried in the format of<br><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.<br>Multiple IDs can be queried in the format of<br><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.<br>Multiple ports can be queried in the format of<br><i>ipv6_vip_port_id=xxx&amp;ipv6_vip_port_id=xxx.</i> |
| ipv6_vip_address      | No        | Array | Specifies the IPv6 address bound to the load balancer.<br>Multiple IPv6 addresses can be queried in the format of<br><i>ipv6_vip_address=xxx&amp;ipv6_vip_address=xxx.</i>              |
| ipv6_vip_virsubnet_id | No        | Array | Specifies the ID of the IPv6 subnet where the load balancer resides.<br>Multiple IDs can be queried in the format of<br><i>ipv6_vip_virsubnet_id=xxx&amp;ipv6_vip_virsubnet_id=xxx.</i> |

| Parameter | Mandatory | Type  | Description   |
|-----------|-----------|-------|---|
| eips      | No        | Array | <p>Specifies the IPv4 EIP bound to the load balancer. The following is an example:</p> <pre>"eips": [ { "eip_id": "e9b72a9d-4275-455e-a724-853504e4d9c6", "eip_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>eip_id</b> is used as the query condition, the format is<br/><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<br/><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<br/><i>eips=ip_version=xxx&amp;eips=ip_version=xxx.</i></li></ul> <p>Note that this parameter has the same meaning as <b>publicips</b>.</p> |

| 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<br/><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<br/><i>*publicips=publicip_address=xxx&amp;publicips=publicip_address=xxx.</i></li> <li>• If <b>ip_version</b> is used as the query condition, the format is<br/><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<br/><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<br/><i>l4_flavor_id=xxx&amp;l4_flavor_id=xxx.</i></p>  |

| Parameter                       | Mandatory | Type  | Description   |
|---------------------------------|-----------|-------|---|
| <code>l4_scale_flavor_id</code> | No        | Array | Specifies the ID of the elastic flavor at Layer 4, which is reserved for now.<br><br>Multiple flavors can be queried in the format of <i>l4_scale_flavor_id=xxx&amp;l4_scale_flavor_id=xxx</i> .<br><br>This parameter is unsupported. Please do not use it.  |
| <code>l7_flavor_id</code>       | No        | Array | Specifies the ID of a flavor at Layer 7.<br><br>Multiple flavors can be queried in the format of <i>l7_flavor_id=xxx&amp;l7_flavor_id=xxx</i> .   |
| <code>l7_scale_flavor_id</code> | No        | Array | Specifies the ID of the elastic flavor at Layer 7. Multiple flavors can be queried in the format of <i>l7_scale_flavor_id=xxx&amp;l7_scale_flavor_id=xxx</i> . This parameter is unsupported. Please do not use it.   |
| <code>member_device_id</code>   | No        | Array | 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.<br><br>Multiple IDs can be queried in the format of <i>member_device_id=xxx&amp;member_device_id=xxx</i> .                              |
| <code>member_address</code>     | No        | Array | 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.<br><br>Multiple private IP addresses can be queried in the format of <i>member_address=xxx&amp;member_address=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> |
| 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> <p>This parameter is unsupported. Please do not use it.</p>   |

| 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" }<br>Multiple values query can be queried in the format of <i>autoscaling=enable=true&amp;autoscaling=enable=false</i> .<br>This parameter is unsupported. Please do not use it.   |
| log_topic_id       | No        | String | Specifies the ID of the log group that is associated with the load balancer. Multiple IDs can be queried in the format of <i>log_topic_id=xxx&amp;log_topic_id=xxx</i> .   |
| log_group_id       | No        | String | Specifies the ID of the log topic that is associated with the load balancer. Multiple IDs can be queried in the format of <i>log_group_id=xxx&amp;log_group_id=xxx</i> .   |

## Request Parameters

**Table 4-55** 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 4-56 Response body parameters

| Parameter     | Type  | Description   |
|---------------|---|---|
| loadbalancers | Array of <a href="#">LoadBalancer</a> objects | Lists the load balancers.                                       |
| 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 4-57 LoadBalancer

| Parameter           | Type                                     | Description   |
|---------------------|--|---|
| id                  | String                                   | Specifies the load balancer ID.   |
| description         | String                                   | Provides supplementary information about the load balancer.<br>Minimum: <b>1</b><br>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.   |

| Parameter                  | Type   | Description   |
|----------------------------|--|---|
| 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.  |
| 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 <a href="#">Tag</a> 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 <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_virtual_subnet_id | String                                       | Specifies the ID of the IPv6 subnet where the load balancer resides.  |

| Parameter              | Type  | Description  |
|------------------------|---|--|
| 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.<br>If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project.<br>"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.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>1024</b>  |
| l4_flavor_id           | String  | Specifies the ID of a flavor at Layer 4.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l4_scale_flavor_id     | String  | Specifies the ID of the reserved flavor at Layer 4.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| l7_flavor_id           | String  | Specifies the ID of a flavor at Layer 7.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l7_scale_flavor_id     | String  | Specifies the ID of the reserved flavor at Layer 7.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| publicips              | 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> .   |

| Parameter          | Type   | Description  |
|--------------------|--|--|
| global_eips        | 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.<br><br>This parameter is unsupported. Please do not use it.   |
| elb_virsubnet_ids  | Array of strings                               | Lists the IDs of subnets on the downstream plane.  |
| elb_virsubnet_type | 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>  |
| ip_target_enable   | Boolean  | Specifies whether to enable the IP as a Backend option.<br><br>If you enable this function, you can add servers in a peer VPC connected through a VPC peering connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.<br><br>The value can be <b>true</b> (enable <b>IP as a Backend</b> ) or <b>false</b> (disable <b>IP as a Backend</b> ).<br><br>Note: <ul style="list-style-type: none"> <li>● The value can only be updated to <b>true</b>.</li> </ul> |
| frozen_scene       | String   | Specifies the scenario where the load balancer is frozen. Multiple values are separated using commas (.).<br><br>This parameter is unsupported. Please do not use it.  |
| ipv6_bandwidth     | <a href="#">BandwidthRef</a> 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.  |

| Parameter                  | Type                                  | Description  |
|----------------------------|---------------------------------------|--|
| deletion_protection_enable | Boolean                               | <p>Specifies whether deletion protection is enabled.</p> <ul style="list-style-type: none"> <li>● <b>false</b>: Deletion protection is not enabled.</li> <li>● <b>true</b>: Deletion protection is enabled.</li> </ul> <p><b>NOTE</b><br/>Disable deletion protection for all your resources before deleting your account.</p> <p>This parameter is returned only when deletion protection is enabled at the site.</p> <p>This parameter is unsupported. Please do not use it.</p>   |
| 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                                | <p>Specifies the AZ group to which the load balancer belongs.</p>  |
| 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                                | <p>Specifies the ID of the log group that is associated with the load balancer.</p>  |
| log_topic_id               | String                                | <p>Specifies the ID of the log topic that is associated with the load balancer.</p>  |

**Table 4-58** PoolRef

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

**Table 4-59** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-60** Tag

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

**Table 4-61** 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 4-62** 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 4-63** 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 4-64** BandwidthRef

| Parameter | Type   | Description                        |
|-----------|--------|------------------------------------|
| id        | String | Specifies the shared bandwidth ID. |

**Table 4-65** 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.<br>Minimum: <b>1</b><br>Maximum: <b>36</b>                             |

**Table 4-66** 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](#).

## 4.6.3 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 4-67** 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 4-68** 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 4-69** 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 4-70** LoadBalancer

| Parameter           | Type                                | Description   |
|---------------------|-------------------------------------|---|
| id                  | String                              | Specifies the load balancer ID.   |
| description         | String                              | Provides supplementary information about the load balancer.<br>Minimum: <b>1</b><br>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.<br>If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project.<br>"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.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>1024</b>  |

| Parameter          | Type                                  | Description  |
|--------------------|---------------------------------------|--|
| l4_flavor_id       | String                                | Specifies the ID of a flavor at Layer 4.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l4_scale_flavor_id | String                                | Specifies the ID of the reserved flavor at Layer 4.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| l7_flavor_id       | String                                | Specifies the ID of a flavor at Layer 7.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l7_scale_flavor_id | String                                | Specifies the ID of the reserved flavor at Layer 7.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| publicips          | Array of <b>PublicIpInfo</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>eips</b> .   |
| global_eips        | Array of <b>GlobalEipInfo</b> objects | Specifies the global EIP bound to the load balancer. Only the first global EIP specified under <b>global_eips</b> will be bound.<br>This parameter is unsupported. Please do not use it.                   |
| elb_virsubnet_ids  | Array of strings                      | Lists the IDs of subnets on the downstream plane.  |
| elb_virsubnet_type | 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> |

| Parameter                  | Type                       | Description   |
|----------------------------|----------------------------|---|
| ip_target_enable           | Boolean                    | <p>Specifies whether to enable the IP as a Backend option.</p> <p>If you enable this function, you can add servers in a peer VPC connected through a VPC peering 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>The value can be <b>true</b> (enable <b>IP as a Backend</b>) or <b>false</b> (disable <b>IP as a Backend</b>).</p> <p>Note:</p> <ul style="list-style-type: none"><li>The value can only be updated to <b>true</b>.</li></ul> |
| 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 deletion protection is enabled.</p> <ul style="list-style-type: none"><li><b>false</b>: Deletion protection is not enabled.</li><li><b>true</b>: Deletion protection is enabled.</li></ul> <p><b>NOTE</b><br/>Disable deletion protection for all your resources before deleting your account.</p> <p>This parameter is returned only when deletion protection is enabled at the site.</p> <p>This parameter is unsupported. Please do not use it.</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.<br><br>Note:<br><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.  |
| waf_failure_action  | String                                | Specifies traffic distributing policies when the WAF is faulty.<br><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.<br>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 4-71** PoolRef

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

**Table 4-72** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-73** Tag

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

**Table 4-74** 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 4-75** 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 4-76** 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 4-77** BandwidthRef

| Parameter | Type   | Description                        |
|-----------|--------|------------------------------------|
| id        | String | Specifies the shared bandwidth ID. |

**Table 4-78** 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.<br>Minimum: <b>1</b><br>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_virsubnet_id" : null,
"ipv6_vip_port_id" : null,
"publicips" : [ ],
"elb_virsubnet_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](#).

## 4.6.4 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 4-79** Path Parameters

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

## Request Parameters

**Table 4-80** Request header parameters

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

**Table 4-81** Request body parameters

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

**Table 4-82** UpdateLoadBalancerOption

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| name      | No        | String | Specifies the load balancer name.<br>Minimum: <b>0</b><br>Maximum: <b>255</b> |

| Parameter             | Mandatory | Type    | Description  |
|-----------------------|-----------|---------|--|
| admin_state_up        | No        | Boolean | Specifies whether to enable the load balancer. <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>   |
| description           | No        | String  | Provides supplementary information about the load balancer.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| ipv6_vip_virsubnet_id | No        | String  | Specifies the ID of the IPv6 subnet where the load balancer resides. You can query parameter <b>id</b> in the response by calling the API (GET https://<br>{VPC_Endpoint}/v1/<br>{project_id}/subnets).<br>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.<br>Note: <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> <p>The IPv4 subnet can be updated by specifying a different value for <b>vip_subnet_cidr_id</b>, and the private IPv4 address of the load balancer will be changed accordingly.</p> <p>Note:</p> <ul style="list-style-type: none"> <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>• If this parameter is set to <b>null</b>, the private IPv4 address will be unbound from the load balancer.</li> <li>• The IPv6 subnet will not change, if IPv4 subnet is updated.</li> </ul> <p>The private IPv4 address cannot be unbound from a gateway load balancer.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>36</b></p> |

| Parameter    | Mandatory | Type   | Description  |
|--------------|-----------|--------|--|
| vip_address  | No        | String | 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. The value of <b>ipv4_address</b> cannot be changed for gateway load balancers. <b>vip_address</b> can be updated only when <b>guaranteed</b> is set to <b>true</b> .<br>Minimum: <b>1</b><br>Maximum: <b>36</b> |
| l4_flavor_id | No        | String | Specifies the flavor ID of a network load balancer.<br>Note:<br><b>l4_flavor_id</b> is not supported by gateway load balancers.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| l7_flavor_id | No        | String | Specifies the flavor ID of an application load balancer.<br>Note:<br><b>l7_flavor_id</b> is not supported by gateway load balancers.<br>Minimum: <b>1</b><br>Maximum: <b>36</b>  |
| gw_flavor_id | No        | String | Specifies the flavor ID of the gateway load balancer. If <b>gw_flavor_id</b> is not specified, the default flavor is used. The default flavor varies by site.<br>Minimum: <b>1</b><br>Maximum: <b>36</b>   |



| Parameter        | Mandatory | Type                                | Description  |
|------------------|-----------|-------------------------------------|--|
| ipv6_bandwidth   | No        | <a href="#">BandwidthRef</a> 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.  |
| ip_target_enable | No        | Boolean                             | Specifies whether to add backend servers that are not in the load balancer's VPC. If you enable this function, you can add servers in a peer VPC connected through a VPC peering connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses. The value can be <b>true</b> ( <b>IP as a Backend</b> enabled) or <b>false</b> ( <b>IP as a Backend</b> disabled).<br>Note: <ul style="list-style-type: none"><li>The value can only be updated to <b>true</b>.</li></ul> |

| 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><br/>Maximum: <b>64</b><br/>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>: Disable deletion protection.</li> </ul> <p><b>NOTE</b><br/>Disable deletion protection for all your resources before deleting your account.</p> <p>This parameter is unsupported. Please do not use it.</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 4-83** BandwidthRef

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

**Table 4-84** UpdateLoadbalancerAutoscalingOption

| Parameter        | Mandatory | Type    | Description   |
|------------------|-----------|---------|---|
| enable           | Yes       | Boolean | Specifies whether to enable elastic scaling the load balancer.<br>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.<br>Minimum: <b>1</b><br>Maximum: <b>36</b>  |

## Response Parameters

Status code: 200

**Table 4-85** Response body parameters

| Parameter       | Type                       | Description  |
|-----------------|----------------------------|--|
| loadbalancer    | <b>LoadBalancer</b> object | Specifies the load balancer.   |
| loadbalancer_id | String                     | Specifies the load balancer ID.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>0</b><br>Maximum: <b>36</b> |
| order_id        | String                     | Specifies the order No.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>0</b><br>Maximum: <b>36</b>         |

| Parameter  | Type   | Description  |
|------------|--------|--|
| request_id | String | Specifies the request ID. The value is automatically generated.<br>Minimum: <b>0</b><br>Maximum: <b>36</b> |

**Table 4-86** LoadBalancer

| Parameter           | Type                                | Description   |
|---------------------|-------------------------------------|---|
| id                  | String                              | Specifies the load balancer ID.   |
| description         | String                              | Provides supplementary information about the load balancer.<br>Minimum: <b>1</b><br>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.  |

| 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                                | Specifies the enterprise project ID.<br>If this parameter is not passed during resource creation, "0" will be returned, and the resource belongs to the default enterprise project.<br>"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.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>1024</b>  |
| l4_flavor_id          | String                                | Specifies the ID of a flavor at Layer 4.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l4_scale_flavor_id    | String                                | Specifies the ID of the reserved flavor at Layer 4.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| l7_flavor_id          | String                                | Specifies the ID of a flavor at Layer 7.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| l7_scale_flavor_id    | String                                | Specifies the ID of the reserved flavor at Layer 7.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| publicips             | Array of <b>PublicIpInfo</b> objects  | Specifies the EIP bound to the load balancer. Only one EIP can be bound to a load balancer.<br>This parameter has the same meaning as <b>eips</b> .  |
| global_eips           | Array of <b>GlobalEipInfo</b> objects | Specifies the global EIP bound to the load balancer. Only the first global EIP specified under <b>global_eips</b> will be bound.<br>This parameter is unsupported. Please do not use it.   |

| Parameter                  | Type                       | Description  |
|----------------------------|----------------------------|--|
| elb_virsubnet_ids          | Array of strings           | Lists the IDs of subnets on the downstream plane.  |
| elb_virsubnet_type         | 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>   |
| ip_target_enable           | Boolean                    | Specifies whether to enable the IP as a Backend option.<br>If you enable this function, you can add servers in a peer VPC connected through a VPC peering connection, or in an on-premises data center at the other end of a Direct Connect or VPN connection, by using their IP addresses.<br>The value can be <b>true</b> (enable <b>IP as a Backend</b> ) or <b>false</b> (disable <b>IP as a Backend</b> ).<br>Note: <ul style="list-style-type: none"><li>● The value can only be updated to <b>true</b>.</li></ul> |
| frozen_scene               | String                     | Specifies the scenario where the load balancer is frozen. Multiple values are separated using commas (,).<br>This parameter is unsupported. Please do not use it.  |
| 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 deletion protection is enabled. <ul style="list-style-type: none"><li>● <b>false</b>: Deletion protection is not enabled.</li><li>● <b>true</b>: Deletion protection is enabled.</li></ul> <b>NOTE</b><br>Disable deletion protection for all your resources before deleting your account.<br>This parameter is returned only when deletion protection is enabled at the site.<br>This parameter is unsupported. Please do not use it.   |



| 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.  |
| 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 4-87** PoolRef

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

**Table 4-88** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-89** Tag

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

**Table 4-90** 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 4-91** 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 4-92** 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 4-93** BandwidthRef

| Parameter | Type   | Description                        |
|-----------|--------|------------------------------------|
| id        | String | Specifies the shared bandwidth ID. |

**Table 4-94** 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.<br>Minimum: <b>1</b><br>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_virsubnet_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](#).

## 4.6.5 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 4-95** 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 4-96** 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](#).

## 4.6.6 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 4-97** 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 4-98** 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 4-99** Response body parameters

| Parameter | Type  | Description   |
|-----------|---|---|
| statuses  | <a href="#">LoadBalancerStatusResult</a> object | Provides information about the load balancer status tree. |

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

**Table 4-100** LoadBalancerStatusResult

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

**Table 4-101** LoadBalancerStatus

| Parameter           | Type  | Description  |
|---------------------|---|--|
| name                | String  | Specifies the load balancer name.<br>Minimum: <b>1</b><br>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> |
| 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.  |

| Parameter        | Type   | Description  |
|------------------|--------|--|
| 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 4-102** 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   | <p>Specifies the provisioning status of the listener. The value can only be <b>ACTIVE</b>, indicating that the listener is successfully provisioned.</p> |
| pools               | Array of <b>LoadBalancerStatusPool</b> objects   | <p>Specifies the operating status of the backend server group associated with the listener.</p>  |
| l7policies          | Array of <b>LoadBalancerStatusPolicy</b> objects | <p>Specifies the operating status of the forwarding policy added to the listener.</p>  |
| id                  | String   | <p>Specifies the listener ID.</p>  |



| Parameter        | Type   | Description   |
|------------------|--------|---|
| operating_status | String | <p>Specifies the operating status of the listener. The value can only be one of the following:</p> <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 4-103** LoadBalancerStatusPolicy

| Parameter           | Type   | Description   |
|---------------------|--|---|
| action              | 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 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   | <p>Specifies the provisioning status of the forwarding policy.</p> <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>  |
| name                | String   | <p>Specifies the policy name.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>255</b></p>  |
| rules               | Array of <b>LoadBalancerStatusL7Rule</b> objects | Specifies the forwarding rule.  |

**Table 4-104** 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 4-105** 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.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| healthmonitor       | <b>LoadBalancerStatusHealthMonitor</b> object    | Specifies the health check results of backend servers in the load balancer status tree.  |
| members             | Array of <b>LoadBalancerStatusMember</b> objects | Specifies the backend server.  |
| id                  | String   | Specifies the ID of the backend server group.  |

| Parameter        | Type   | Description  |
|------------------|--------|--|
| operating_status | String | <p>Specifies the operating status of the backend server group.</p> <p>The value can be one of the following:</p> <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> <p>Note: <b>DEGRADED</b> and <b>DISABLED</b> are returned only when the API for querying the load balancer status tree is called.</p> |

**Table 4-106** 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.<br>Minimum: <b>1</b><br>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 4-107** 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.  |

| Parameter        | Type    | Description  |
|------------------|---------|--|
| 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.<br>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-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 Codes

| Status Code | Description         |
|-------------|---------------------|
| 200         | Successful request. |

## Error Codes

See [Error Codes](#).

# 4.7 Certificate

## 4.7.1 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 4-108** Path Parameters

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

## Request Parameters

**Table 4-109** Request header parameters

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

**Table 4-110** Request body parameters

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

**Table 4-111** CreateCertificateOption

| Parameter      | Mandatory | Type    | Description   |
|----------------|-----------|---------|---|
| admin_state_up | No        | Boolean | Specifies the administrative status of the certificate.<br>This parameter is unsupported. Please do not use it. |

| Parameter   | Mandatory | Type   | Description  |
|-------------|-----------|--------|--|
| certificate | No        | String | <p>Specifies the body of the certificate required by HTTPS listeners. The value must be PEM encoded.</p> <p>Maximum 65,536 character length is allowed, supports certificate chains with a maximum of 11 layers (including certificates and certificate chains).</p>   |
| description | No        | String | <p>Provides supplementary information about the certificate.</p> <p>Minimum: <b>0</b><br/>Maximum: <b>255</b></p>  |
| 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> and the default value is "".</p> <ul style="list-style-type: none"> <li>The value can contain 0 to 1024 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 30 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><br/>Maximum: <b>10000</b></p> |

| Parameter             | Mandatory | Type   | Description  |
|-----------------------|-----------|--------|--|
| name                  | No        | String | Specifies the certificate name.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| private_key           | No        | String | Specifies the private key of the certificate used by HTTPS listeners. The value can contain up to 8,192 PEM encoded characters. <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> |
| 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><br>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 4-112 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 4-113** CertificateInfo

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>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.<br>Minimum: <b>1</b><br>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 1024 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 30 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><br>Maximum: <b>10000</b> |
| id             | String  | Specifies the certificate ID.  |
| name           | String  | Specifies the certificate name.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| private_key    | String  | Specifies the private key of the certificate used by HTTPS listeners. The value can contain up to 8,192 PEM encoded characters. <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                 | 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.   |
| subject_alternative_names | Array of strings | Specifies all the domain names of the certificate.   |

## Example Requests

Creating a server certificate and specifying the private key used by the HTTPS listener

POST https://{elb\_endpoint}/v3/{project\_id}/elb/certificates

```
{
  "certificate" : {
    "name" : "My Certificate",
    "type" : "server",
    "private_key" : "-----BEGIN PRIVATE KEY-----
\nMIIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAKggwggSkAgEAAoIBAQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcJ8KcNz1nfzTvl2ksXLTQ2o9BkpStnPe\ntB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lccq39buNplgDOWzEP5AzaXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl\nZAPYUBkl/
OXuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwLCLU08k\nEo04Z9H/
AgMBAAECCggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\nfvCarftGgMaYWPSNCRJMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgYHwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKR\nciuy9YkInNEHu6uRJ5g/
eGGX3KQynTvwIhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M\nEGpfYI6AdHIwFZcT/
RNAXhP82lg2gUJSgAu66FfdjMwQXKbafKdP3zq4Up8a7Ale\nkrguPtfV1vWklg
+bUFhgGaiAEYTpAUN9t2DvliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCZ08MKeV2jf2drlxRRwRI33SksQbzAQ/qrLdT7GP3sCGqvkvWY2FPdFy8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjP7dt
\nJ7n8EzkrRUNE6aIMHOFEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\niWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGivS7yQiYWU+wthAr9urbWYdGZ
\nS6VjoTkF6r7VZoILXX0fBuXh6lm8K8lQRfBpjff56p9phMwaBpDNDrpfHB5utBU\nx40yldp6wKBgQC69Cp/
xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jr4eB\n1IVQhELGI9CbKSdzKM71GyElmix/
T7FnJSHIWlho1qVo6AQyduNwnAQD15pr8KAd\nXGXAZZ1FQcb3KYa
+2fflERmazdOTWjYz0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak\n/735uP20KqHnehZpC2dJei7OIlgRHcs/
dkASUXHSW4fptBnUxACYocdDxtY4Vha\nfi7FPMdvGl8ioYbvlHFh
+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUKR4fxp9pPyodZPqBLLAoGBAJkD4wHW54Pwd4Ctfk9o
\njHjWB7pQUYpTZO9dm+4fpcMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9Iluk
\nfaoXgJKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BULGKMWXzueD\n3fy
+1rCUwzOp9LSjtYf4ege\n-----END PRIVATE KEY-----",
    "certificate" : "-----BEGIN CERTIFICATE-----
\nMIIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTMXID
\nb21wYW55IENBMB4XDTE4MDcwMjEzMTU0N1oXDTE4MTExNzEzMTU0N1owFDESMBAG
\nA1UEAwWJbG9yYXob3N0MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCGKCAQEAn0FQgzi3ucTX
```

```
+DNud1p/  
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8Ctlg  
v+eyU9yYJslWx/Bm5kWNPh9\n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/  
W7jaS\niAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K  
\ny09cxLKAFTgoZWQD2FAZJf9F7k1kYNwqlTz3CPLZUUn7yw3nkOOTLMI28IEv0Wy  
\nyd7CMJQkS1NPJBKNOGfR/wiDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/  
AAABMBMGA1UdJQQMMAoGCCSGAQUFBwMBMA0GCsGSIb3DQEBwUA  
\nA4lBAQA8lMQJxaTey7EjXtRSLVIEAMftAQPG6jjjNQuvIBQYUDauDT4W2XUZ5wAn  
\njjOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKI0dl9I5I98TGKI6OoDa  
\nzmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYlzp1HMnl6hkjPk4PCZ  
\nwkNha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml\n+vbmunok3A2luc14rnsrckbGYqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZiYsGDVN+9QBd0eYUHce  
+77s96i3l\n-----END CERTIFICATE-----"  
}  
}
```

## Example Responses

### Status code: 201

Normal response to POST requests.

```
{  
  "certificate" : {  
    "private_key" : "-----BEGIN PRIVATE KEY-----  
MIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J  
+B7kYwsMhRcgcj8KcN1nfzTvl2ksXITQ2o9BkpStnPetB4s32ZiJRMlk  
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMD30gH6QoP3cq7PGWcuZKV7hjd1tjCT  
QukwMvqV8lcq39buNplgDOWzEP5AzcqXtCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOce/  
W2f8rLT1zEsoAW2ChlZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwLCRLU08kEo04Z9H/  
AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/  
HlfrCARftGgMaYWPNSNCJRMXB7tPwpQu19esjz4Z/  
cR2Je4fTLPrffGUsHFgZjv5OQBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNK  
Krciu9YkInNEHu6uRj5g/eGGX3KQynTvIhnOVGAJvJTXcoU6fm7gYdHAD6jk9c9MEGpfY16AdHlWfZcT/  
RNAXhP82lg2gUJSgAu66FFdJmWQXKbafKdP3zq4Up8a7AlekrguPtfV1vWklg  
+bUfhgGaiAEYTpAUN9t2DvliigQKBgQDnYMMsaF0r557CM1CTXUqgCzo8MKeV2jfdrlxRRwRL33SksQbzAQ/  
qrLdT7GP3sCGqvkvWY2FPdFYf8kxGcCeZPcleZYQCAM41pjtsaM8tVbLWVR8UtGBuQoPsPh7JNF3Tm/JH/  
fbwjP7dt7n8EzkRUNE6aIMHOFEEych/  
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgYK4aLriWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlv57y  
QiyWU  
+wthAr9urbWYdGZIS6VjoTkF6r7VZoLXX0fbuXh6lm8K8lQRfBpJff56p9pMwaBpDNDrpfHB5utBUxs40yldp6w  
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jr4eB1lVQhELGI9CbKsDzKM71GyElmix/  
T7FnISHIWho1qVo6AQyduNwNAQD15pr8KAdXGXAZZ1FQcb3KYa  
+2fflERmazdOTWjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak/735uP20KKqhNehZpC2dJei7OilRhCS/  
dKASUXHSW4fptBnUxACYocdDxtY4Vhaf17FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa  
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLA0GBAJKD4wHW54PwD4Ctfc9ojHjWB7pQUiYpT  
ZO9dm  
+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9lIukfaoXgjKR7p1zERiWzUff63SB4aiyX1H7IX0MwHDZQO3  
8a5gZaOm/BUIGKMWXzuEd3fy+1rCUwzOp9LSjtYf4ege-----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-----  
MIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMNTXlDb21wYW55IENBMB4X  
DTE4MDcwMjEzEzU0N1oXDTQ1MTEExNzEzEzU0N1owFDESMBAGA1UEAwJbG9jYXxob3N0MIIBIjANBgkqh  
kiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAFQgzi3ucTX+DNud1p/  
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5U0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8Ctlg  
v+eyU9yYJslWx/Bm5kWNPh97B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/  
W7jaS\niAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/  
Ky09cxLKAFTgoZWQD2FAZJf9F7k1kYNwqlTz3CPLZUUn7yw3nkOOTLMI28IEv0WyYd7CMJQkS1NPJBKNOGfR/  
wiDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/  
AAABMBMGA1UdJQQMMAoGCCSGAQUFBwMBMA0GCsGSIb3DQEBwUAA4lBAQA8lMQJxaTey7EjXtRSLV  
IEAMftAQPG6jjjNQuvIBQYUDauDT4W2XUZ5wAnjjiOyQ83va672K1G9s8n6xlH  
+xwwdSNnozaKzC87vwSeZKI0dl9I5I98TGKI6OoDaemzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvP  
LYlzp1HMnl6hkjPk4PCZwKha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml  
+vbmunok3A2luc14rnsrckbGYqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZiYsGDVN+9QBd0eYUHce  
-----END CERTIFICATE-----"  
  }  
}
```

```
+77s96i3I-----END CERTIFICATE-----",
  "admin_state_up" : true,
  "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
  "updated_at" : "2019-03-31T23:26:49Z",
  "type" : "server",
  "common_name" : "www.example.com",
  "fingerprint" : "869df7fcb441c2ef3fb9329437815972eeb1ef0e",
  "subject_alternative_names" : [ "www.example.com" ]
},
"request_id" : "98414965-856c-4be3-8a33-3e08432a222e"
}
```

## Status Codes

| Status Code | Description                       |
|-------------|-----------------------------------|
| 201         | Normal response to POST requests. |

## Error Codes

See [Error Codes](#).

## 4.7.2 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 4-114** Path Parameters

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

**Table 4-115** Query Parameters

| Parameter    | Mandatory | Type    | Description   |
|--------------|-----------|---------|---|
| marker       | No        | String  | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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 a certificate ID.<br>Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .  |
| name         | No        | Array   | Specifies the certificate name.<br>Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i> .  |

| Parameter      | Mandatory | Type    | Description  |
|----------------|-----------|---------|--|
| description    | No        | Array   | Provides supplementary information about the certificate.<br><br>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.<br><br>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> .<br><br>Multiple domain names can be queried in the format of <i>domain=xxx&amp;domain=xxx</i> .                           |
| 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.<br><br>Multiple types can be queried in the format of <i>type=xxx&amp;type=xxx</i> . |
| common_name    | No        | Array   | Specifies the primary domain name of the certificate. Multiple values can be queried in the format of <i>common_name=xxx&amp;common_name=xxx</i> .   |
| fingerprint    | No        | Array   | Specifies the fingerprint of the certificate. Multiple values can be queried in the format of <i>fingerprint=xxx&amp;fingerprint=xxx</i> .   |

## Request Parameters

**Table 4-116** 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 4-117** 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 4-118** 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 4-119** CertificateInfo

| Parameter      | Type    | Description   |
|----------------|---------|---|
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>This parameter is unsupported. Please do not use it. |

| Parameter   | Type   | Description  |
|-------------|--------|--|
| certificate | String | Specifies the certificate content. The value must be PEM encoded.  |
| description | String | Provides supplementary information about the certificate.<br>Minimum: <b>1</b><br>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 1024 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 30 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><br>Maximum: <b>10000</b> |
| id          | String | Specifies the certificate ID.  |
| name        | String | Specifies the certificate name.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| private_key | String | Specifies the private key of the certificate used by HTTPS listeners. The value can contain up to 8,192 PEM encoded characters. <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>   |
| 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> .   |



| Parameter                 | Type             | Description  |
|---------------------------|------------------|--|
| 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.         |
| subject_alternative_names | Array of strings | Specifies all the domain names 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-----
MIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J
+B7kYwsMhRcgdcJ8KcN1nfzTvl2ksXITQ2o9BkpStnPetB4s32ZIJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCT
QukwMvqV8lcq39buNplgDOWzEP5AqzXtCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOCe/
W2f8rLT1zEsoAW2ChlZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjwbwgS/RbJh3slwCRLU08kEo04Z9H/
AgMBAAEcggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/
HlfvCARftGgMaYWPSNcJRMXB7tPwpQu19esjz4Z/
cR2Je4fTLPrffGUsHFgZjv5OQBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNK
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+bUFhgGaiAEYTPAUN9t2DVIiijgQKBgQDnYMMsaF0r557CM1CTXUqgCZo8MKeV2jf2drLxRRwRl33SksQbzAQ/
qrLdT7GP3sCGqvKxWY2FPdFYf8kxGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/
fbwjP7dtU7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLriWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7y
QiYWU
+wthAr9urbWYdGZIS6VjoTkF6r7VZoILXX0fBuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBUxs40Yldp6w
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB1lVQhELG9CbKsdzKM71GyElmix/
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+2fflERmazedOTwJYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak/735uP20KKqhNehZpC2dJei7OilgRhCS/
dKASUXHSW4fptBnUxACYocdDxtY4Vhaf17FPMdvgL8ioYbvlHFh+XOXs9r1S8yeWnHoXMB6eXWmYKMrAoveLa
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4Ctfk9ojHjWB7pQUiYpT
ZO9dm
+4fpCMn9Okf43AE2yAoAP94GdzdJkxfciXKcsYr9IluKfaoXgjKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BUIGKMWXzuEd3fy+1rCUwzOp9LSjtYf4ege-----END PRIVATE KEY-----",
    "certificate": "-----BEGIN CERTIFICATE-----
MIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGAA1UEAxMMTXIDb21wYW55IENBMBA4X
```

```
DTE4MDcwMjEzMjU0N1oXDTQ1MTEExNzEzMjU0N1owFDESMBAGA1UEAwwJbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBBgKCAQEA0FQGzi3ucTX+DNud1p/b4XVM6l3rY7+Cfge5GMLDIUIHXcfcGp19Z3807yNpLF5U0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh97B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaSIazsxD+QM6l7QjhWj+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/Ky09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOtLMI28IEv0WYyD7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/AAABMBMGGA1UdJQQMMAoGCCSGAQUFBwMBMA0GCSqGSIb3DQEBwUAA4IBAQA8IMQJxaTey7EjXtRLSVLEAMftAQPG6jjjNQuvIBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDaemzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYlzp1HMnl6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOSLaIKdHErH08lqd+1BchScxCfk0xNITn1HZZGml+vbmunok3A2luc14rnsrbcGyqGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZiYsGDVN+9QBd0eYUHce+77s96i3l-----END CERTIFICATE-----",
  "admin_state_up" : true,
  "created_at" : "2019-04-21T18:59:43Z",
  "updated_at" : "2019-04-21T18:59:43Z",
  "expire_time" : "2045-11-17T13:25:47Z",
  "common_name" : "www.example.com",
  "fingerprint" : "869df7fcb441c2ef3fb9329437815972eeb1ef0e",
  "subject_alternative_names" : [ "www.example.com" ]
}, {
  "id" : "7875ccb4c6b44cdb90ab2ab89892ab71",
  "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
  "name" : "https_certificatekkkk",
  "type" : "client",
  "domain" : "sda.com",
  "description" : "description for certificatehhhh",
  "private_key" : "-----BEGIN PRIVATE KEY-----
MIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J
+B7kYwsMhRcgdcJ8KcX1nfzTvl2ksXITQ2o9BkpStnPetB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCT
QukwMvqV8lcc39buNplgDOWzEP5AzqXtCOFYn6RTH5SRug4hKNN7sT1eYMsIHu7wtEBDKVgrLjOce/
W2f8rLT1zEsoAW2ChlZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08kEo04Z9H/
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HlfvCARftGgMaYWPSNCRJMXB7tPwpQu19esjz4Z/
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qrLdT7GP3sCGqvXWY2FPdFYf8kxGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGbuQoPspH7JNF3Tm/JH/
fbwjP7dtJ7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLriWgTWHXPzXUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7y
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T7FnjSHIWh01qVo6AQyduNwNAQD15pr8KADXGAXZZ1FQcb3KYa
+2fllERmazdOTWjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKbGdak/735uP20KKqhNehZpC2dJei7OilRhCs/
dKASUXHSW4fptBnUxACYocdDxtY4Vhaf17FPMdvG8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqLLaOGBAJkD4wHW54PwD4CtFk9ojHjWB7pQUYpT
ZO9dm
+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9IluKfaoXgJKR7p1zERiWzUfF63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BUlGKMWXzuEd3fy+1rCUwzOp9LSjtYf4ege-----END PRIVATE KEY-----",
  "certificate" : "-----BEGIN CERTIFICATE-----
MIIC4TCCAcmgAwIBAgICEREDwQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMmMTXlDb21wYW55IENBMB4X
DTE4MDcwMjEzMjU0N1oXDTQ1MTEExNzEzMjU0N1owFDESMBAGA1UEAwwJbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBBgKCAQEA0FQGzi3ucTX+DNud1p/b4XVM6l3rY7+Cfge5GMLDIUIHXcfcGp19Z3807yNpLF5U0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh97B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaSIazsxD+QM6l7QjhWj+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/Ky09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOtLMI28IEv0WYyD7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/AAABMBMGGA1UdJQQMMAoGCCSGAQUFBwMBMA0GCSqGSIb3DQEBwUAA4IBAQA8IMQJxaTey7EjXtRLSVLEAMftAQPG6jjjNQuvIBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDaemzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYlzp1HMnl6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOSLaIKdHErH08lqd+1BchScxCfk0xNITn1HZZGml+vbmunok3A2luc14rnsrbcGyqGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZiYsGDVN+9QBd0eYUHce+77s96i3l-----END CERTIFICATE-----",
  "admin_state_up" : true,
  "created_at" : "2018-10-29T20:16:17Z",
```

```

"updated_at" : "2019-04-06T21:33:24Z",
"expire_time" : "2045-11-17T13:25:47Z",
"common_name" : "www.example.com",
"fingerprint" : "869df7fcb441c2ef3fb9329437815972eeb1ef0e",
"subject_alternative_names" : [ "www.example.com" ]
}, {
  "id" : "7f41c96223d34ebaa3c8e836b6625ec0",
  "project_id" : "99a3fff0d03c428eac3678da6a7d0f24",
  "name" : "asdf",
  "type" : "server",
  "domain" : "sda.com",
  "description" : "",
  "private_key" : "-----BEGIN PRIVATE KEY-----
MIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J
+B7kYwsMhRcgdcJ8KCnX1nfzTvl2ksXITQ2o9BkpStnPetB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCT
QukwMvqV8lCq39buNplgDOWzEP5AzqXtCOFYn6RTH55Rug4hKNN7sT1eYMsIHu7wtEBDKVgrLjOce/
W2f8rLt1ZEsoAW2ChLZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwLCRLU08kEo04Z9H/
AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD605XY2fUieh8/
HlfvCARftGgMaYWPSNCRMXB7tPwpQu19esjz4Z/
cR2Je4fTLPrffGUsHFgZjv5OQBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYnBbcfgh8lSETq8YaXngBO6vES9LMhHkNK
Krciu9YkInNEHu6uRJ5g/eGGX3KQynTv/lnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9MEGpFYI6AdHlWfZcT/
RNAxhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7AlekrquPtfV1vWklg
+bUfHngGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CTXUqgCZo8MKeV2jfdrlxRRwRL33SkSqbzAQ/
qrLdT7GP3sCGqvkxWY2FPdFyF8kxGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGbuQoPSph7JNF3Tm/JH/
fbwjpp7dtJ7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLriWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7y
QiYWU
+wthAr9urbWYdGZIS6VjoTkF6r7VZoLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDRfpHB5utBUxs40yldp6w
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB1lVQhELGI9CbKsDzKM71GyElmix/
T7FnjSHIWlho1qVo6AQyduNwNAQD15pr8KAdXGXAZZ1FQcb3KYa
+2fllERmazdOTWjYz0tGqZnXkEeMd5LkmqlCRigWhGQKBgDak/735uP20KKqhNehZpC2dJei7OilgRhCS/
dKASUXHSW4fptBnUxACYocDxtY4Vhaf17FPMdvG18ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqLLaOGBAJkD4wHW54Pwd4CtFk9ojHjWB7pQUYpT
ZO9dm
+4fpCMn9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9IluKfaoXgJKR7p1zERiWzUff63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BUIGKMWXzuEd3fy+1rCUwzOp9LSjtYf4ege-----END PRIVATE KEY-----",
  "certificate" : "-----BEGIN CERTIFICATE-----
MIIC4TCCACmgAwIBAgICEREwDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMmMTXIDb21wYW55IENBMB4X
DTE4MDcwMjEzMjU0N1oXDTQ1MTEExNzEzMjU0N1owFDESMBAGA1UEAwwJbG9jYWxob3N0M0IIBIjANBgkqh
kiG9w0BAQEFAAOCAQ8AMIIBCGKCAQEA0FQgzi3ucTX+DNud1p/
b4XVM613rY7+Cfge5GMLDIUIHXcFcgP19Z3807yNpLF5U0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDbB8CtIlgV
+eyU9yYslWx/Bm5kWNPh97B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/
W7jaSiAzlsxD+QM6l7QjhWj+kUx+UkboOISjTe7E9XmDLJR7u8LRAQylyKy4zgnv1tn/
Ky09cxLKAftgoZWQD2FAZJf97k1kYNwqITz3CPILZUUn7yW3nkOOTLMI28IEv0WYyD7CMJQks1NPJBKNOGfR/
wiDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/
AAABMBMGA1UdJQQMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBCwUAA4IBAQA8IMQJxaTey7EjXtRSLVl
EAMftAQPG6jijNquvIBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xIH
+xxwdSNnozaKzC87vwSeZKI0dL9I5198TGKl6OoDaemzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPR
LYlzp1HMni6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml
+vbmunok3A2luc14rnsrckGyqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/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",
  "common_name" : "www.example.com",
  "fingerprint" : "869df7fcb441c2ef3fb9329437815972eeb1ef0e",
  "subject_alternative_names" : [ "www.example.com" ]
}],
"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](#).

## 4.7.3 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 4-120** 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 4-121** 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 4-122** 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 4-123** CertificateInfo

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>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.<br>Minimum: <b>1</b><br>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 1024 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 30 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><br>Maximum: <b>10000</b> |
| id             | String  | Specifies the certificate ID.  |

| Parameter                 | Type             | Description  |
|---------------------------|------------------|--|
| name                      | String           | Specifies the certificate name.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| private_key               | String           | Specifies the private key of the certificate used by HTTPS listeners. The value can contain up to 8,192 PEM encoded characters. <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> |
| 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.   |
| subject_alternative_names | Array of strings | Specifies all the domain names 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-----
MIIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M253Wn9vhdUzojetjv4J
```

```
+B7kYwsMhRcgdcj8KcNx1nfzTvl2ksXITQ2o9BkpStnPetB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH172luna7rMMD30gH6QoP3cq7PGWcuZKV7hjd1tjCT
KukwMvqV8lcq39buNpIgdOWzEP5AzcXtCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOCe/
W2f8rLT1zEsoAW2ChlZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjwbwgS/RbJh3slwLCRLU08kEo04Z9H/
AgMBAAECggEAEleaQqHCWZk/HyYn0Am/GJSGFa2tD60SXY2fUieh8/
HlfvCARftGgMaYWPSNCRJMXB7tPwpQu19esjz4Z/
cR2Je4FTLPrffGUsHFgZjv5OOBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYnBbcfgh8ISETq8YaXngBO6vES9LMhHkNK
Rrciu9YkInNEHu6uRJ5g/eGGX3KQynTvIhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9MEGpFYI6AdHlwFzcT/
RNAXhP82lg2gUJsgAu66FfdjMwQXKbafKdP3zq4Up8a7AlekrquPtfV1vWklg
+bUFhgGaiAETpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CTXUqgCZo8MKeV2jf2drLxRRwRl33SksQbzAQ/
qrLd7GP3sCGqvkvWY2FPdFy8kxGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGbuQoPSph7JNF3Tm/JH/
fbwjpP7dtU7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYk4aLriWgTWHXPZxUQaYhpjxO6+IMI6DpExiDgBAkMzJGlvS7y
QiYWU
+wthAr9urbWydgZIS6VjoTkF6r7VZoILXX0fbuXh6lm8K8lQRfBpJff56p9pMwaBpDNDrfpHB5tUBx40Yldp6w
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB1lVQhELGI9CbKsdzKM71GyElmix/
T7FnSHIWIho1qVo6AQyduNwNAQD15pr8KAdXGAZZ1FQcb3KYa
+2fllERmazdOTwYz0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak/735uP20KkqhNehZpC2dJei7OilRgRCS/
dKASUXHSW4fptBnUxACYodDxtY4Vhaf17FPMdvGL8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMJrAoveLa
+2cFm1Agf7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJKD4wHW54PwD4Ctfk9ojHjWB7pQIUypT
ZO9dm
+4fpCMn9Okf43AE2yAOaAP94GdzdJkxfciXKcsYr9lIukfaoXgjKR7p1zERiWzUff63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BUIGKMWXzuEd3fy+1rCUwzOp9LSjtYf4ege-----END PRIVATE KEY-----",
  "certificate" : "-----BEGIN CERTIFICATE-----
MIIC4TCCAcmgAwIBAgICEREdQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMNTXlDb21wYW55IENBMB4X
DTE4MDcwMjEzMTU0N1oXDTQ1MTE4MTU0N1owFDESMBAGA1UEAwwJbG9jYXVob3N0M0IIBjANBgkqh
kiG9wOBAQEFAAOCAQ8AMIIBCgKCAQEA0FQZi3ucTX+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUIHXCfCgp19Z3807yNpLF5U0NqPQZKUrZz3rQeLN9mYiUTJZPutYFDDbB8CtIgV
+eyU9yYJslWx/Bm5kWNPh97B9YU9pbbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwK0LpMDL6fCHKt/
W7jaSIAzlsx+QM6l7QjhWj+kUx+UkboOISjTe7E9XmDLJR7u8LRAQylYKy4zgnv1tn/
Ky09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPILZUUn7yw3nkOotLMI28IEv0WyYd7CMJQks1NPJBKNOGfr/
wlDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/
AAABMBMGA1UdJQQMMAoGCCGAQUBwMBMA0GCSqGSIb3DQEBCwUAA4IBAQA8IMQJxaTey7EjXtRSLVl
EAMftAQPG6jjjNquvIBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xlH
+xwwdSNnozaKzC87vwSeZKlOdl9I5I98TGKI6OoDaetzCwQyTfHBMVQ4c7Ml8554Ft1mWst4dMAK2rzNYjvPR
LYlzp1HMnl6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml
+vbmunok3A2lucl14rnsrbcGyqxGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/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",
  "common_name" : "www.example.com",
  "fingerprint" : "869df7fcb441c2ef3fb9329437815972eeb1ef0e",
  "subject_alternative_names" : [ "www.example.com" ]
},
  "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. |

| Status Code | Description   |
|-------------|---------------|
| 500         | System error. |

## Error Codes

See [Error Codes](#).

## 4.7.4 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 4-124** 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 4-125** Request header parameters

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



**Table 4-126** Request body parameters

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

**Table 4-127** UpdateCertificateOption

| Parameter   | Mandatory | Type   | Description   |
|-------------|-----------|--------|---|
| certificate | No        | String | Specifies the private key of the certificate. The value must be PEM encoded.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>   |
| name        | No        | String | Specifies the certificate name.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>   |
| private_key | No        | String | Specifies the private key of the server certificate. The value must be PEM encoded. Maximum 8,192 character length is allowed. <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>.</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 1024 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 30 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><br/>Maximum: <b>10000</b></p> |

## Response Parameters

Status code: 200

**Table 4-128** 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 4-129** CertificateInfo

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>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.<br>Minimum: <b>1</b><br>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 1024 characters and consists of multiple common domain names or wildcard domain names separated by commas. A maximum of 30 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><br>Maximum: <b>10000</b> |
| id             | String  | Specifies the certificate ID.  |
| name           | String  | Specifies the certificate name.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |
| private_key    | String  | Specifies the private key of the certificate used by HTTPS listeners. The value can contain up to 8,192 PEM encoded characters. <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                 | 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.   |
| subject_alternative_names | Array of strings | Specifies all the domain names 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
+B7kYwsMhRcgdcJ8KCnX1nfzTvl2ksXLTQ2o9BkpStnPetB4s32ZiJRMlk
+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rMMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCT
QukwMvqV8lcq39buNplgDOWzEP5AqzXtCOFYn6RTH5SRug4hKNN7sT1eYMslHu7wtEBDKVgrLjOce/
W2f8rLT1zEsoAW2ChlZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjwbwgs/RbJh3slwICRLU08kEo04Z9H/
AgMBAAECCggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/
HlfvCARftGgMaYWPSNcJRMXB7tPwpQu19esjz4Z/
cR2Je4fTLPrffGUshFgZjv5OQBZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8ISETq8YaXngBO6vES9LMhHkNK
Krciu9YkInNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9c9MEGpFYI6AdHlwFZcT/
RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7AlekrpuPtfV1vWklg
+buFhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CTXUqgCZo8MKeV2jf2drLxRRwRI33SksQbzAQ/
qrLdT7GP3sCGqvKxWY2FPdFYf8kxGcCeZPcleZYQCAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/
fbwjpjP7dtj7n8EzkRUNE6aIMHOFeych/
PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLriWgTWHXPzXUqaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7y
QiYwU
+wthArurbWYdGZLS6VjoTkF6r7VZoLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBUxs40yldp6w
KBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB1LVQhELG9CbKsdzKM71GyElmix/
T7FnJSHIWlho1qVo6AQyduNwnAQD15pr8KAdXGXAZZ1FQcb3KYa
```

```
+2ffLERmazdOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak/735uP20KKqhNehZpC2dJei7OilgRhCS/
dKASUXHSW4fptBnUxACYocDxtY4Vhaf17FPMdvGl8ioYbvlHFh+XOXs9r1S8yeWnHoXMB6eXWmYKMrAoveLa
+2cFm1Agf7nLhA4R4lqm9IpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4Ctfk9ojHjWB7pQIUYPt
ZO9dm
+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9IluKfaoXgjKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO3
8a5gZaOm/BUIGKMWXzuEd3fy+1rCuwzOp9LSjtUYf4ege-----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-----
MIIC4TCCAcmgAwIBAgICEREWdQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMNTXIDb21wYW55IENBMB4X
DTE4MDcwMjEzMTU0N1oXDTQ1MTE5NzEzMTU0N1owFDESMBAGA1UEAwwjbG9jYWxob3N0M0M0IIBjANBgkqh
kiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA0FQGzi3ucTX+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5U0NqPQZKUrZz3rQeLn9mYiUTJZPutYlFDDbB8CtIgv
+eyU9yYJslWx/Bm5kWNPh97B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/
W7jaSIazlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQylyKy4zgnv1tn/
Ky09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOtLMI28IEv0WyyYd7CMJQks1NPJBKNOGfR/
wiDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29thwQKuUvJhwR/
AAABMBMGA1UdJQQMMAoGCCSGAQUFBwMBMA0GCsqGSIb3DQEBcwUAA4IBAQA8IMQJxaTey7EjXtRSLVl
EAMftAQPG6jijNQuvIBQYUDauDT4W2XUZ5wAnjiOyQ83va672K1G9s8n6xIH
+xxxxSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDaemzCwQYtHBMVQ4c7MI8554Ft1mWSt4dMAK2rzNYjvPR
LYlp1HMni6hkjPk4PCZwKnha0dlScati9CCt3UzXSNJOSLalKdHrH08lqd+1BchScxCfk0xNITn1HZZGml
+vbmunok3A2luc14rnsrcbkGYqxGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZiYsGDVN+9QBd0eYUHce
+77s96i3I-----END CERTIFICATE-----",
  "admin_state_up": true,
  "project_id": "99a3fff0d03c428eac3678da6a7d0f24",
  "updated_at": "2019-03-31T23:26:49Z",
  "type": "server",
  "common_name": "www.example.com",
  "fingerprint": "869df7fcb441c2ef3fb9329437815972eeb1ef0e",
  "subject_alternative_names": [ "www.example.com" ]
},
"request_id": "d9abea6b-98ee-4ad4-8c5d-185ded48742f"
}
```

## Status Codes

| Status Code | Description         |
|-------------|---------------------|
| 200         | Successful request. |

## Error Codes

See [Error Codes](#).

### 4.7.5 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 4-130** 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 4-131** 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](#).

# 4.8 Security Policy

## 4.8.1 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 4-132** Path Parameters

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

### Request Parameters

**Table 4-133** Request header parameters

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

**Table 4-134** Request body parameters

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

**Table 4-135** CreateSecurityPolicyOption

| Parameter             | Mandatory | Type             | Description   |
|-----------------------|-----------|------------------|---|
| name                  | No        | String           | Specifies the name of the custom security policy. The default value is "".<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| description           | No        | String           | Provides supplementary information about the custom security policy. The default value is "".<br>Minimum: <b>0</b><br>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> .<br>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 4-136** 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 4-137** 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 4-138** 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-e8a9837d8e75",
  "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](#).

## 4.8.2 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 4-139** Path Parameters

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

**Table 4-140** Query Parameters

| Parameter | Mandatory | Type    | Description   |
|-----------|-----------|---------|---|
| marker    | No        | String  | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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> |
| id           | No        | Array   | <p>Specifies the ID of the custom security policy.</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 name of the custom security policy.</p> <p>Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i>.</p>  |
| description  | No        | Array   | <p>Provides supplementary information about the custom security policy.</p> <p>Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xxx</i>.</p>  |
| protocols    | No        | Array   | <p>Specifies the TLS protocols supported by the custom security policy. (Multiple protocols are separated using spaces.)</p> <p>Multiple protocols can be queried in the format of <i>protocols=xxx&amp;protocols=xxx</i>.</p>  |

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

## Request Parameters

Table 4-141 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 4-142 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 4-143 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 4-144** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-145** 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](#).

### 4.8.3 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 4-146** 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 4-147** 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 4-148** 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 4-149** 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 4-150** 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](#).

## 4.8.4 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 4-151** 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 4-152** Request header parameters

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

**Table 4-153** Request body parameters

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

**Table 4-154** UpdateSecurityPolicyOption

| Parameter   | Mandatory | Type             | Description   |
|-------------|-----------|------------------|---|
| name        | No        | String           | Specifies the name of the custom security policy.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>   |
| description | No        | String           | Provides supplementary information about the custom security policy.<br>Minimum: <b>0</b><br>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><br>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 4-155** 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 4-156** 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 4-157** 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](#).

## 4.8.5 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 4-158** 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 4-159** 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](#).



## 4.8.6 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 4-160** Path Parameters

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

### Request Parameters

**Table 4-161** 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 4-162** 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 4-163** 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-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-1-0-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-
SHA384:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-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"
  }, {
    "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"
}, {
"name" : "tls-1-2-strict-no-cbc",
"project_id" : "7a9941d34fc1497d8d0797429ecfd354",
"protocols" : "TLSv1.2",
"cipher" : "ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:ECDHE-RSA-
AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256"
}
}

```

## Status Codes

| Status Code | Description         |
|-------------|---------------------|
| 200         | Successful request. |

## Error Codes

See [Error Codes](#).

# 4.9 IP Address Group

## 4.9.1 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. 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 4-164** Path Parameters

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

### Request Parameters

**Table 4-165** Request header parameters

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

**Table 4-166** 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 4-167** CreatelpGroupOption

| Parameter             | Mandatory | Type   | Description   |
|-----------------------|-----------|--|---|
| project_id            | No        | String   | Specifies the project ID of the IP address group.<br>Minimum: <b>1</b><br>Maximum: <b>32</b>                                    |
| description           | No        | String   | Provides supplementary information about the IP address group.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>                      |
| name                  | No        | String   | Specifies the IP address group name.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| ip_list               | Yes       | Array of <a href="#">CreatelpGroupIpOption</a> objects | Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address.<br>Array Length: <b>0 - 300</b> |
| enterprise_project_id | No        | String   | Specifies the ID of the enterprise project that the IP address group belongs to.  |

**Table 4-168** CreatelpGroupIpOption

| Parameter   | Mandatory | Type   | Description  |
|-------------|-----------|--------|--|
| ip          | Yes       | String | Specifies the IP addresses in the IP address group.                                      |
| description | No        | String | Provides remarks about the IP address group.<br>Minimum: <b>0</b><br>Maximum: <b>255</b> |

## Response Parameters

Status code: 201

**Table 4-169** 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 4-170** IpGroup

| Parameter             | Type                                | Description   |
|-----------------------|-------------------------------------|---|
| id                    | String                              | Specifies the ID of the IP address group.   |
| name                  | String                              | Specifies the IP address group name.  |
| description           | String                              | Specifies the time when the IP address group was updated.   |
| ip_list               | Array of <b>IpInfo</b> objects      | Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address.<br>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 4-171** IpInfo

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

**Table 4-172** 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](#).

## 4.9.2 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 4-173** Path Parameters

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

**Table 4-174** Query Parameters

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| marker    | No        | String | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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 4-175** 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 4-176** 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 4-177** IpGroup

| Parameter             | Type                                | Description   |
|-----------------------|-------------------------------------|---|
| id                    | String                              | Specifies the ID of the IP address group.   |
| name                  | String                              | Specifies the IP address group name.  |
| description           | String                              | Specifies the time when the IP address group was updated.   |
| ip_list               | Array of <b>IpInfo</b> objects      | Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address.<br>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 4-178** IpInfo

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

**Table 4-179** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-180** 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 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](#).

## 4.9.3 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 4-181** 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 4-182** 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 4-183** 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 4-184** IpGroup

| Parameter             | Type                                | Description   |
|-----------------------|-------------------------------------|---|
| id                    | String                              | Specifies the ID of the IP address group.   |
| name                  | String                              | Specifies the IP address group name.  |
| description           | String                              | Specifies the time when the IP address group was updated.   |
| ip_list               | Array of <b>IpInfo</b> objects      | Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address.<br>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 4-185** IpInfo

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

**Table 4-186** 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](#).

## 4.9.4 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. 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 4-187** 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 4-188** Request header parameters

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

**Table 4-189** Request body parameters

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

**Table 4-190** UpdateIpGroupOption

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

**Table 4-191** UpdateIpGroupIpOption

| Parameter   | Mandatory | Type   | Description  |
|-------------|-----------|--------|--|
| ip          | Yes       | String | Specifies the IP addresses in the IP address group.                                      |
| description | No        | String | Provides remarks about the IP address group.<br>Minimum: <b>0</b><br>Maximum: <b>255</b> |

## Response Parameters

Status code: 200



**Table 4-192** 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 4-193** IpGroup

| Parameter             | Type                                | Description   |
|-----------------------|-------------------------------------|---|
| id                    | String                              | Specifies the ID of the IP address group.   |
| name                  | String                              | Specifies the IP address group name.  |
| description           | String                              | Specifies the time when the IP address group was updated.   |
| ip_list               | Array of <b>IpInfo</b> objects      | Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address.<br>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 4-194** IpInfo

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

**Table 4-195** 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](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](#).

## 4.9.5 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 4-196** 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 4-197** 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](#).

## 4.9.6 Updating IP Addresses in an IP Address Group

### Function

This API is used to update the IP addresses in an IP address group.

### Calling Method

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

### URI

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

**Table 4-198** 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 4-199** Request header parameters

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

**Table 4-200** 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 4-201** 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 4-202** UpdateIpGroupOption

| Parameter   | Mandatory | Type   | Description  |
|-------------|-----------|--------|--|
| ip          | Yes       | String | Specifies the IP addresses in the IP address group.                                      |
| description | No        | String | Provides remarks about the IP address group.<br>Minimum: <b>0</b><br>Maximum: <b>255</b> |

## Response Parameters

Status code: 200

**Table 4-203** Response body parameters

| Parameter | Type                           | Description                   |
|-----------|--------------------------------|-------------------------------|
| ipgroup   | <a href="#">IpGroup</a> object | Shows IP address information. |

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

**Table 4-204** IpGroup

| Parameter             | Type                                | Description   |
|-----------------------|-------------------------------------|---|
| id                    | String                              | Specifies the ID of the IP address group.   |
| name                  | String                              | Specifies the IP address group name.  |
| description           | String                              | Specifies the time when the IP address group was updated.   |
| ip_list               | Array of <b>IpInfo</b> objects      | Specifies the IP addresses or CIDR blocks in the IP address group. [] indicates any IP address.<br>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 4-205** IpInfo

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

**Table 4-206** 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](#).

## 4.9.7 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 4-207** 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 4-208** Request header parameters

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



**Table 4-209** 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 4-210** BatchDeleteIpListOption

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

**Table 4-211** IpGroupIp

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

## Response Parameters

Status code: 200

**Table 4-212** 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 4-213** IpGroup

| Parameter   | Type   | Description   |
|-------------|--------|---|
| id          | String | Specifies the ID of the IP address group.                 |
| name        | String | Specifies the IP address group name.                      |
| description | String | Specifies the time when the IP address group was updated. |

| 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.<br>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 4-214** IpInfo

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

**Table 4-215** 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](#).

# 4.10 Listener

## 4.10.1 Adding a Listener

### Function

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

### Constraints

When adding a listener, note the following:

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

- For load balancing both at Layer 4 and Layer 7, the listener protocol can be TCP, UDP, TLS, HTTP, HTTPS, or QUIC.
- When adding a listener to a gateway load balancer, the listener protocol can be IP.

QUIC is not supported.

## Calling Method

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

## URI

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

**Table 4-216** Path Parameters

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

## Request Parameters

**Table 4-217** Request header parameters

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

**Table 4-218** Request body parameters

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

**Table 4-219** 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> .<br>This parameter is unsupported. Please do not use it.  |
| 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.<br>Minimum: <b>1</b><br>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> .<br>This parameter is not available if the listener protocol is <b>IP</b> or <b>QUIC</b> .<br>QUIC protocol is not supported.<br>Minimum: <b>1</b><br>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, TLS, or QUIC and <b>type</b> is set to <b>server</b> .<br>Minimum: <b>1</b><br>Maximum: <b>128</b>   |
| description                 | No        | String  | Provides supplementary information about the listener.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |

| Parameter       | Mandatory | Type   | Description  |
|-----------------|-----------|--|--|
| http2_enable    | No        | Boolean                                      | Specifies whether to use HTTP/2 if you want the clients to use HTTP/2 to communicate with the load balancer. However, connections between the load balancer and backend servers still use HTTP/1.x by default.<br><br>This parameter is available only for HTTPS listeners. If you configure this parameter for listeners with other protocols, it will not take effect. |
| insert_headers  | No        | <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.   |
| loadbalancer_id | Yes       | String                                       | Specifies the ID of the load balancer that the listener is added to. Note: A listener can be added to only one load balancer.<br><br>Minimum: <b>1</b><br>Maximum: <b>36</b>   |
| name            | No        | 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.<br><br>Minimum: <b>0</b><br>Maximum: <b>255</b>   |
| project_id      | No        | String                                       | Specifies the project ID.<br><br>Minimum: <b>1</b><br>Maximum: <b>32</b>   |

| Parameter          | Mandatory | Type                        | Description   |
|--------------------|-----------|-----------------------------|---|
| protocol           | Yes       | String                      | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>UDP</b> , <b>HTTP</b> , <b>HTTPS</b> , or <b>IP</b> . <b>IP</b> is only available for listeners that will be added to gateway load balancers.<br>QUIC is not supported.  |
| protocol_port      | No        | 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.<br>The port of IP listeners can only be 0.<br>QUIC protocol is not supported.<br>Minimum: <b>0</b><br>Maximum: <b>65535</b>                 |
| sni_container_refs | No        | Array of strings            | Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener.<br>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 30.</li> </ul> Array Length: <b>0 - 50</b> |
| sni_match_algo     | No        | String                      | Specifies how wildcard domain name matches with the SNI certificates used by the listener.<br><b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match.<br>The default value is <b>wildcard</b> .   |
| tags               | No        | Array of <b>Tag</b> objects | Lists the tags.   |

| Parameter          | Mandatory | Type   | Description   |
|--------------------|-----------|--------|---|
| tls_ciphers_policy | No        | String | <p>Specifies the security policy used by the listener.</p> <p>Values: <b>tls-1-0-inherit</b>, <b>tls-1-0</b>, <b>tls-1-1</b>, <b>tls-1-2-strict</b>, and <b>tls-1-0</b> (default).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter will take effect only for HTTPS listeners.</li> <li>• If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>• The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> <p>TLS1.3 is unsupported.</p> |
| security_policy_id | No        | String | <p>Specifies the ID of the custom security policy.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter will take effect only for HTTPS listeners.</li> <li>• If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>• The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> <p>TLS1.3 is unsupported.</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>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, or <b>HTTPS</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 and IP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li></ul> <p>+For HTTP, HTTPS, and TERMINATED_HTTPS listeners, the value ranges from <b>0</b> to <b>4000</b>, and the default value is <b>60</b>.</p> <ul style="list-style-type: none"><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>3600</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><br/>Maximum: <b>300</b><br/>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>3600</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><br/>Maximum: <b>300</b><br/>Default: <b>60</b></p>  |
| ipgroup        | No        | <a href="#">CreateListenerIpGroupOption</a> object | <p>Specifies the IP address group associated with the listener.</p>  |

| Parameter                    | Mandatory | Type    | Description   |
|------------------------------|-----------|---------|---|
| transparent_client_ip_enable | No        | Boolean | Specifies whether to pass source IP addresses of the clients to backend servers.<br>For all listeners, the default value is <b>true</b> if this parameter is not passed.  |
| 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><br/>Value <b>false</b> can't be used after this parameter was set to <b>true</b>.</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 a TCP/UDP/HTTP/QUIC listener, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b><br/>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> <p>QUIC protocol is not supported.</p> |

**Table 4-220** ListenerInsertHeaders

| Parameter          | Mandatory | Type    | Description   |
|--------------------|-----------|---------|---|
| X-Forwarded-ELB-IP | No        | Boolean | <p>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.</p> |

| Parameter            | Mandatory | Type    | Description  |
|----------------------|-----------|---------|--|
| 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.                |
| 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.   |

| Parameter                      | Mandatory | Type    | Description   |
|--------------------------------|-----------|---------|---|
| 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.   |
| 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 4-221** Tag

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

**Table 4-222** CreateListenerIpGroupOption

| Parameter      | Mandatory | Type    | Description  |
|----------------|-----------|---------|--|
| ipgroup_id     | Yes       | String  | <p>Specifies the ID of the IP address group associated with the listener.</p> <ul style="list-style-type: none"><li>• If <b>ip_list</b> is set to an empty array [] 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 [] and <b>type</b> to <b>blacklist</b>, any IP address is allowed to access the listener.</li></ul> <p>Minimum: 1<br/>Maximum: <b>3600</b></p> |
| enable_ipgroup | No        | Boolean | <p>Specifies whether to enable access control.</p> <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>   |
| type           | No        | String  | <p>Specifies how access to the listener is controlled.</p> <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 4-223** 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> .<br>QUIC protocol is not supported. |
| 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.<br>QUIC protocol is not supported.<br>Default: <b>false</b>  |

## Response Parameters

Status code: 201

**Table 4-224** 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 4-225** Listener

| Parameter                   | Type    | Description  |
|-----------------------------|---------|--|
| admin_state_up              | Boolean | Specifies the administrative status of the listener.   |
| 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.<br><br>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 the following: <ul style="list-style-type: none"><li>• This parameter is available only for HTTPS listeners.</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.  |

| Parameter          | Type                        | Description  |
|--------------------|-----------------------------|--|
| protocol           | String                      | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>UDP</b> , <b>HTTP</b> , <b>HTTPS</b> , or <b>IP</b> . <b>IP</b> is only available for listeners that will be added to gateway load balancers.   |
| 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. The port for IP listeners can only be 0.<br>Minimum: <b>0</b><br>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.<br>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 30.</li></ul> |
| sni_match_algo     | String                      | Specifies how wildcard domain name matches with the SNI certificates used by the listener.<br><b>longest_suffix</b> indicates longest suffix match.<br><b>wildcard</b> indicates wildcard match.<br>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  | <p>Specifies the security policy used by the listener.</p> <p>Values: <b>tls-1-0-inherit</b>, <b>tls-1-0</b>, <b>tls-1-1</b>, <b>tls-1-2-strict</b>, and <b>tls-1-0</b> (default).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>This parameter will take effect only for HTTPS listeners.</li> <li>If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> <p>TLS1.3 is unsupported.</p> |
| security_policy_id  | String  | <p>Specifies the ID of the custom security policy.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>This parameter will take effect only for HTTPS listeners.</li> <li>If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> <p>TLS1.3 is unsupported.</p>   |
| enable_member_retry | 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>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>This parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, or <b>HTTPS</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 and IP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li> </ul> <p>+For HTTP, HTTPS, and TERMINATED_HTTPS listeners, the value ranges from <b>0</b> to <b>4000</b>, and the default value is <b>60</b>.</p> <ul style="list-style-type: none"> <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>3600</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>3600</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                                | <p>Specifies whether to pass source IP addresses of the clients to backend servers.</p> <p>For all listeners, the default value is <b>true</b> if this parameter is not passed.</p>   |

| 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. 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> <ul style="list-style-type: none"> <li>• If this function is enabled, <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 <b>value</b> 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><br/>Value <b>false</b> can't be used after this parameter was set to <b>true</b>.</p> <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 a TCP/UDP/HTTP/QUIC listener, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b><br/>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> <p>QUIC protocol is not supported.</p> |

**Table 4-226** 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 4-227** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-228** Tag

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



**Table 4-229** ListenerIpGroup

| Parameter      | Type    | Description   |
|----------------|---------|---|
| ipgroup_id     | String  | Specifies the ID of the IP address group associated with the listener.<br>This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.<br>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 4-230** 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> .<br>QUIC protocol is not supported. |
| enable_quic_upgrade | Boolean | Specifies whether to enable QUIC upgrade.<br><b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.<br>QUIC protocol is not supported.  |

## 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 3: Adding an IP listener to a gateway load balancer

POST https://{ELB\_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/listeners

```
{
  "listener" : {
    "protocol" : "IP",
    "loadbalancer_id" : "098b2f68-af1c-41a9-8efd-69958722af62",
    "name" : "My IP listener",
    "admin_state_up" : true,
    "ipgroup" : {
      "ipgroup_id" : "0416b6f1-877f-4a51-987e-978b3f083542",
      "type" : "black"
    }
  }
}
```

## 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](#).

## 4.10.2 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 4-231** Path Parameters

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

**Table 4-232** Query Parameters

| Parameter    | Mandatory | Type    | Description   |
|--------------|-----------|---------|---|
| limit        | No        | Integer | Specifies the number of records on each page.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>Default: <b>2000</b>  |
| marker       | No        | String  | Specifies the ID of the last record on the previous page.<br>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> |

| Parameter                   | Mandatory | Type    | Description   |
|-----------------------------|-----------|---------|---|
| protocol_port               | No        | Array   | Specifies the port used by the listener. If the listener protocol is <b>IP</b> , the frontend port can only be <b>0</b> . 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.<br>The value can be <b>TCP</b> , <b>UDP</b> , <b>HTTP</b> , <b>HTTPS</b> , or <b>IP</b> . <b>IP</b> is only available for listeners that will be added to gateway load balancers.<br>QUIC is not supported.<br>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.<br>Multiple descriptions can be queried in the format of <i>description=xxx&amp;description=xx</i> .   |
| default_tls_container_ref   | No        | Array   | Specifies the ID of the server certificate used by the listener.<br>Multiple IDs can be queried in the format of <i>default_tls_container_ref=xxx&amp;default_tls_container_ref=xxx</i> .   |
| client_ca_tls_container_ref | No        | Array   | Specifies the ID of the CA certificate used by the listener.<br>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.<br>This parameter is unsupported. Please do not use it.  |

| Parameter        | Mandatory | Type    | Description  |
|------------------|-----------|---------|--|
| connection_limit | No        | Array   | <p>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.</p> <p>Multiple values can be queried in the format of <i>connection_limit=xxx&amp;connection_limit=xxx</i>.</p> <p>This parameter is unsupported. Please do not use it.</p>        |
| default_pool_id  | No        | Array   | <p>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.</p> <p>Multiple IDs can be queried in the format of <i>default_pool_id=xxx&amp;default_pool_id=xxx</i>.</p>  |
| id               | No        | Array   | <p>Specifies the listener 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 name of the listener added to the load balancer.</p> <p>Multiple names can be queried in the format of <i>name=xxx&amp;name=xxx</i>.</p>  |
| 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.</p> <p>This parameter is available only for HTTPS listeners. If you configure this parameter for listeners with other protocols, it will not take effect.</p> |

| Parameter          | Mandatory | Type  | Description  |
|--------------------|-----------|-------|--|
| loadbalancer_id    | No        | Array | Specifies the ID of the load balancer that the listener is added to.<br><br>Multiple IDs can be queried in the format of <i>loadbalancer_id=xxx&amp;loadbalancer_id=xxx</i> .  |
| tls_ciphers_policy | No        | Array | Specifies the security policy used by the listener.<br><br>Multiple security policies can be queried in the format of <i>tls_ciphers_policy=xxx&amp;tls_ciphers_policy=xxx</i> .   |
| member_address     | No        | Array | 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.<br><br>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.<br><br>Multiple IDs can be queried in the format of <i>member_device_id=xxx&amp;member_device_id=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> |
| 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>  |
| 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>3600</b>.</p> <p>Multiple durations can be queried in the format of <i>member_timeout=xxx&amp;member_timeout=xxx</i>.</p>   |



| Parameter                    | Mandatory | Type    | Description   |
|------------------------------|-----------|---------|---|
| 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>3600</b>.</p> <p>Multiple durations can be queried in the format of <i>client_timeout=xxx&amp;client_timeout=xxx</i>.</p> |
| 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 and IP 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>0</b> to <b>4000</b>.</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>   |

| Parameter               | Mandatory | Type    | Description  |
|-------------------------|-----------|---------|--|
| 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.  |
| 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 4-233 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 4-234 Response body parameters

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

| Parameter | Type                                      | Description                                   |
|-----------|---|---|
| page_info | <a href="#">PageInfo</a> object           | Shows pagination information about listeners. |
| listeners | Array of <a href="#">Listener</a> objects | Lists the listeners.                          |

**Table 4-235** 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 4-236** Listener

| Parameter                   | Type    | Description   |
|-----------------------------|---------|---|
| admin_state_up              | Boolean | Specifies the administrative status of the listener.  |
| 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.<br><br>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"THH: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.  |

| Parameter      | Type   | Description  |
|----------------|--|--|
| 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 the following: <ul style="list-style-type: none"><li>• This parameter is available only for HTTPS listeners.</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>UDP</b> , <b>HTTP</b> , <b>HTTPS</b> , or <b>IP</b> . <b>IP</b> is only available for listeners that will be added to gateway load balancers.  |
| 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. The port for IP listeners can only be 0.<br><br>Minimum: <b>0</b><br>Maximum: <b>65535</b>   |

| Parameter          | Type                        | Description   |
|--------------------|-----------------------------|---|
| sni_container_refs | Array of strings            | Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener.<br><br>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 30.</li> </ul>   |
| sni_match_algo     | String                      | Specifies how wildcard domain name matches with the SNI certificates used by the listener.<br><b>longest_suffix</b> indicates longest suffix match.<br><b>wildcard</b> indicates wildcard match.<br>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.<br><br>Values: <b>tls-1-0-inherit</b> , <b>tls-1-0</b> , <b>tls-1-1</b> , <b>tls-1-2-strict</b> , and <b>tls-1-0</b> (default).<br><br>Note: <ul style="list-style-type: none"> <li>This parameter will take effect only for HTTPS listeners.</li> <li>If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> TLS1.3 is unsupported. |
| security_policy_id | String                      | Specifies the ID of the custom security policy.<br><br>Note: <ul style="list-style-type: none"> <li>This parameter will take effect only for HTTPS listeners.</li> <li>If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> TLS1.3 is unsupported.   |

| Parameter           | Type    | Description   |
|---------------------|---------|---|
| enable_member_retry | 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>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>This parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, or <b>HTTPS</b>.</li></ul>  |
| 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 and IP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li></ul> <p>+For HTTP, HTTPS, and TERMINATED_HTTPS listeners, the value ranges from <b>0</b> to <b>4000</b>, and the default value is <b>60</b>.</p> <ul style="list-style-type: none"><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>3600</b>, and the default value is <b>60</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p>  |

| 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>3600</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                                | <p>Specifies whether to pass source IP addresses of the clients to backend servers.</p> <p>For all listeners, the default value is <b>true</b> if this parameter is not passed.</p>   |
| 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.   |

| Parameter               | Type                             | Description  |
|-------------------------|----------------------------------|--|
| enhance_l7policy_enable | Boolean                          | <p>Specifies whether to enable advanced forwarding. 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> <ul style="list-style-type: none"> <li>If this function is enabled, <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 <b>value</b> 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><br/>Value <b>false</b> can't be used after this parameter was set to <b>true</b>.</p> <p>Default: <b>false</b></p> |
| quic_config             | <b>ListenerQuicConfig</b> 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 a TCP/UDP/HTTP/QUIC listener, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b><br/>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> <p>QUIC protocol is not supported.</p>  |



**Table 4-237** 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 4-238** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-239** Tag

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

**Table 4-240** ListenerIpGroup

| Parameter      | Type    | Description  |
|----------------|---------|--|
| ipgroup_id     | String  | Specifies the ID of the IP address group associated with the listener.<br>This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.<br>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 4-241** 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> .<br>QUIC protocol is not supported. |
| 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.<br>QUIC protocol is not supported.   |

## 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](#).

## 4.10.3 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 4-242** 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 4-243** 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 4-244** 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 4-245 Listener

| Parameter                   | Type   | Description  |
|-----------------------------|--|--|
| admin_state_up              | Boolean  | Specifies the administrative status of the listener.   |
| 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.<br><br>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 the following: <ul style="list-style-type: none"><li>This parameter is available only for HTTPS listeners.</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.  |

| Parameter          | Type                        | Description  |
|--------------------|-----------------------------|--|
| 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.<br>The value can be <b>TCP</b> , <b>UDP</b> , <b>HTTP</b> , <b>HTTPS</b> , or <b>IP</b> . <b>IP</b> is only available for listeners that will be added to gateway load balancers.   |
| 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. The port for IP listeners can only be 0.<br>Minimum: <b>0</b><br>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.<br>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 30.</li></ul> |
| sni_match_algo     | String                      | Specifies how wildcard domain name matches with the SNI certificates used by the listener.<br><b>longest_suffix</b> indicates longest suffix match.<br><b>wildcard</b> indicates wildcard match.<br>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  | <p>Specifies the security policy used by the listener.</p> <p>Values: <b>tls-1-0-inherit</b>, <b>tls-1-0</b>, <b>tls-1-1</b>, <b>tls-1-2-strict</b>, and <b>tls-1-0</b> (default).</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter will take effect only for HTTPS listeners.</li><li>• If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li><li>• The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li></ul> <p>TLS1.3 is unsupported.</p> |
| security_policy_id  | String  | <p>Specifies the ID of the custom security policy.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter will take effect only for HTTPS listeners.</li><li>• If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li><li>• The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li></ul> <p>TLS1.3 is unsupported.</p>   |
| enable_member_retry | 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>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>• This parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, or <b>HTTPS</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 and IP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li></ul> <p>+For HTTP, HTTPS, and TERMINATED_HTTPS listeners, the value ranges from <b>0</b> to <b>4000</b>, and the default value is <b>60</b>.</p> <ul style="list-style-type: none"><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>3600</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>3600</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                                | <p>Specifies whether to pass source IP addresses of the clients to backend servers.</p> <p>For all listeners, the default value is <b>true</b> if this parameter is not passed.</p>   |

| 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. 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> <ul style="list-style-type: none"> <li>• If this function is enabled, <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 <b>value</b> 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><br/>Value <b>false</b> can't be used after this parameter was set to <b>true</b>.</p> <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 a TCP/UDP/HTTP/QUIC listener, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b><br/>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> <p>QUIC protocol is not supported.</p> |

**Table 4-246** 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 4-247** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-248** Tag

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

**Table 4-249** ListenerIpGroup

| Parameter      | Type    | Description   |
|----------------|---------|---|
| ipgroup_id     | String  | Specifies the ID of the IP address group associated with the listener.<br><br>This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.<br><br>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 4-250** 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> .<br><br>QUIC protocol is not supported. |
| enable_quic_upgrade | Boolean | Specifies whether to enable QUIC upgrade.<br><b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.<br><br>QUIC protocol is not supported.  |

## 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](#).

### 4.10.4 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 4-251** Path Parameters

| Parameter   | Mandatory | Type   | Description                |
|-------------|-----------|--------|----------------------------|
| listener_id | Yes       | String | Specifies the listener ID. |
| project_id  | Yes       | String | Specifies the tenant ID.   |

## Request Parameters

**Table 4-252** Request header parameters

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

**Table 4-253** Request body parameters

| Parameter | Mandatory | Type  | Description                          |
|-----------|-----------|---|--------------------------------------|
| listener  | Yes       | <a href="#">UpdateListenerOption</a> object | Request body for updating a listener |

**Table 4-254** 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> . |

| Parameter                   | Mandatory | Type   | Description   |
|-----------------------------|-----------|--|---|
| 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.<br>Minimum: <b>1</b><br>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.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| http2_enable                | No        | 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.<br><br>This parameter is available only for HTTPS listeners. If you configure this parameter for listeners with other protocols, it will not take effect. |
| insert_headers              | No        | <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.  |



| Parameter          | Mandatory | Type             | Description  |
|--------------------|-----------|------------------|--|
| name               | No        | String           | Specifies the listener name.<br>Note: If you leave the listener name empty, you cannot locate it on the listener list and view its details.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| sni_container_refs | No        | Array of strings | Specifies the IDs of SNI certificates (server certificates with domain names) used by the listener.<br>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 30.</li></ul> |
| sni_match_algo     | No        | String           | Specifies how wildcard domain name matches with the SNI certificates used by the listener.<br><b>longest_suffix</b> indicates longest suffix match. <b>wildcard</b> indicates wildcard match.<br>The default value is <b>wildcard</b> .  |

| Parameter          | Mandatory | Type   | Description   |
|--------------------|-----------|--------|---|
| tls_ciphers_policy | No        | String | <p>Specifies the security policy used by the listener.</p> <p>Values: <b>tls-1-0-inherit</b>, <b>tls-1-0</b>, <b>tls-1-1</b>, <b>tls-1-2-strict</b>, and <b>tls-1-0</b> (default).</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter will take effect only for HTTPS listeners.</li> <li>• If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>• The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> <p>TLS1.3 is unsupported.</p> |
| security_policy_id | No        | String | <p>Specifies the ID of the custom security policy.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter will take effect only for HTTPS listeners.</li> <li>• If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>• The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> <p>TLS1.3 is unsupported.</p> <p>Minimum: <b>1</b><br/>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>.</p> <p>Note:</p> <ul style="list-style-type: none"><li>This parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, or <b>HTTPS</b>.</li></ul>   |
| 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>3600</b>.</p> <p>This parameter is available only for HTTP and HTTPS listeners.</p> <p>Minimum: <b>1</b><br/>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>3600</b>. The default value is <b>60</b>.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>300</b></p>  |

| Parameter                    | Mandatory | Type   | Description   |
|------------------------------|-----------|--|---|
| 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 and IP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li></ul> <p>+For HTTP, HTTPS, and TERMINATED_HTTPS listeners, the value ranges from <b>0</b> to <b>4000</b>, and the default value is <b>60</b>.</p> <ul style="list-style-type: none"><li>For UDP listeners of shared load balancers, this parameter does not take effect.</li></ul> |
| ipgroup                      | No        | <a href="#">UpdateListenerIpGroupOption</a> object | Specifies the IP address group associated with the listener.  |
| transparent_client_ip_enable | No        | Boolean  | <p>Specifies whether to pass source IP addresses of the clients to backend servers.</p> <p>For all listeners, the default value is <b>true</b> if this parameter is not passed.</p>   |
| 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. 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 | <p>Specifies whether to enable advanced forwarding. 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> <ul style="list-style-type: none"><li>• If this function is enabled, <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 <b>value</b> 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><br/>Value <b>false</b> can't be used after this parameter was set to <b>true</b>.</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 a TCP/UDP/HTTP/QUIC listener, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b><br/>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> <p>QUIC protocol is not supported.</p> |

**Table 4-255** ListenerInsertHeaders

| Parameter          | Mandatory | Type    | Description   |
|--------------------|-----------|---------|---|
| X-Forwarded-ELB-IP | No        | Boolean | <p>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.</p> |

| Parameter            | Mandatory | Type    | Description  |
|----------------------|-----------|---------|--|
| 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.                |
| 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.   |

| Parameter                      | Mandatory | Type    | Description   |
|--------------------------------|-----------|---------|---|
| 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.   |
| 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 4-256** UpdateListenerIpGroupOption

| Parameter      | Mandatory | Type    | Description   |
|----------------|-----------|---------|---|
| ipgroup_id     | No        | String  | Specifies the ID of the IP address group associated with the listener.<br><br>This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.<br><br>The specified IP address group must exist, and the value cannot be <b>null</b> .<br>Minimum: <b>1</b><br>Maximum: <b>3600</b> |
| enable_ipgroup | No        | Boolean | Specifies whether access control is enabled.<br><br><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 | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| 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 4-257** 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> . QUIC protocol is not supported. |
| 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. QUIC protocol is not supported.  |

## Response Parameters

Status code: 200

**Table 4-258** Response body parameters

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

| Parameter | Type                            | Description                         |
|-----------|---------------------------------|-------------------------------------|
| listener  | <a href="#">Listener</a> object | Response body for adding a listener |

**Table 4-259** Listener

| Parameter                   | Type    | Description  |
|-----------------------------|---------|--|
| admin_state_up              | Boolean | Specifies the administrative status of the listener.   |
| 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.<br><br>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 the following: <ul style="list-style-type: none"><li>• This parameter is available only for HTTPS listeners.</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>UDP</b> , <b>HTTP</b> , <b>HTTPS</b> , or <b>IP</b> . <b>IP</b> is only available for listeners that will be added to gateway load balancers.  |
| 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. The port for IP listeners can only be 0.<br><br>Minimum: <b>0</b><br>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.<br><br>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 30.</li></ul> |
| sni_match_algo     | String   | Specifies how wildcard domain name matches with the SNI certificates used by the listener.<br><b>longest_suffix</b> indicates longest suffix match.<br><b>wildcard</b> indicates wildcard match.<br>The default value is <b>wildcard</b> .   |
| tags               | Array of <a href="#">Tag</a> objects             | Lists the tags.  |

| Parameter           | Type    | Description   |
|---------------------|---------|---|
| 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.<br>Values: <b>tls-1-0-inherit</b> , <b>tls-1-0</b> , <b>tls-1-1</b> , <b>tls-1-2-strict</b> , and <b>tls-1-0</b> (default).<br>Note: <ul style="list-style-type: none"> <li>This parameter will take effect only for HTTPS listeners.</li> <li>If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> TLS1.3 is unsupported. |
| security_policy_id  | String  | Specifies the ID of the custom security policy.<br>Note: <ul style="list-style-type: none"> <li>This parameter will take effect only for HTTPS listeners.</li> <li>If both <b>security_policy_id</b> and <b>tls_ciphers_policy</b> are specified, only <b>security_policy_id</b> will take effect.</li> <li>The priority of the encryption suite from high to low is: ecc suite, rsa suite.</li> </ul> TLS1.3 is unsupported.   |
| 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> .<br>Note: <ul style="list-style-type: none"> <li>This parameter is available only when <b>protocol</b> is set to <b>HTTP</b>, or <b>HTTPS</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 and IP listeners, the value ranges from <b>10</b> to <b>4000</b>, and the default value is <b>300</b>.</li></ul> <p>+For HTTP, HTTPS, and TERMINATED_HTTPS listeners, the value ranges from <b>0</b> to <b>4000</b>, and the default value is <b>60</b>.</p> <ul style="list-style-type: none"><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>3600</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>3600</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                                | <p>Specifies whether to pass source IP addresses of the clients to backend servers.</p> <p>For all listeners, the default value is <b>true</b> if this parameter is not passed.</p>   |

| 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. 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> <ul style="list-style-type: none"> <li>• If this function is enabled, <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 <b>value</b> 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><br/>Value <b>false</b> can't be used after this parameter was set to <b>true</b>.</p> <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 a TCP/UDP/HTTP/QUIC listener, if this parameter is not left blank, an error will be reported.</p> <p><b>NOTE</b><br/>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> <p>QUIC protocol is not supported.</p> |

**Table 4-260** 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 4-261** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-262** Tag

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



**Table 4-263** ListenerIpGroup

| Parameter      | Type    | Description   |
|----------------|---------|---|
| ipgroup_id     | String  | Specifies the ID of the IP address group associated with the listener.<br><br>This parameter is mandatory when you create the IP address group and is optional when you update the IP address group.<br><br>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 4-264** 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> .<br><br>QUIC protocol is not supported. |
| enable_quic_upgrade | Boolean | Specifies whether to enable QUIC upgrade.<br><b>True</b> : QUIC upgrade is enabled. <b>False</b> : QUIC upgrade is disabled. HTTPS listeners can be upgraded to QUIC listeners.<br><br>QUIC protocol is not supported.  |

## 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](#).

## 4.10.5 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 4-265** 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 4-266** 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](#).

# 4.11 Backend Server Group

## 4.11.1 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 4-267** Path Parameters

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

## Request Parameters

**Table 4-268** Request header parameters

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

**Table 4-269** 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 4-270** 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> . |
| description    | No        | String  | Provides supplementary information about the backend server group.<br>Minimum: <b>0</b><br>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> <li>● <b>2_TUPLE_HASH</b>: 2-tuple hash that is only available for IP backend server groups</li> <li>● <b>3_TUPLE_HASH</b>: 3-tuple hash that is only available for IP backend server groups</li> <li>● <b>5_TUPLE_HASH</b>: 5-tuple hash that is only available for IP backend server groups</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> <p>QUIC_CID is not supported.</p> |
| 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>Minimum: <b>1</b><br/>Maximum: <b>36</b></p>  |

| Parameter       | Mandatory | Type   | Description   |
|-----------------|-----------|--------|---|
| loadbalancer_id | No        | String | Specifies the ID of the load balancer with which the backend server group is associated.<br>Minimum: <b>1</b><br>Maximum: <b>36</b> |
| name            | No        | String | Specifies the backend server group name.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| project_id      | No        | String | Specifies the project ID of the backend server group.<br>Minimum: <b>1</b><br>Maximum: <b>32</b>                                    |

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| protocol  | Yes       | String | <p>Specifies the protocol used by the backend server group to receive requests.</p> <p>The value can be <b>TCP</b>, <b>UDP</b>, <b>IP</b>, <b>TLS</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>QUIC</b>.</p> <p>Note:</p> <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>IP</b>, the protocol of the backend server group must be <b>IP</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>, <b>HTTPS</b>, or <b>gRPC</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 listener's protocol is <b>QUIC</b>, the protocol of the backend server group can be <b>HTTP</b>, <b>HTTPS</b>, or <b>gRPC</b>.</li> <li>• If the listener's protocol is <b>TLS</b>, the protocol of the backend server group can be <b>TLS</b> or <b>TCP</b>. If protocol of the backend server group is <b>TCP</b>, the <b>ip_version</b> must be set to <b>v4</b>.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• If protocol of the backend server group is <b>QUIC</b>,</li> </ul> |



| Parameter                         | Mandatory | Type                                      | Description  |
|-----------------------------------|-----------|---|--|
|                                   |           |   | <p><b>session_persistence</b> must be set to <b>true</b>, with <b>type</b> set to <b>SOURCE_IP</b>.</p> <ul style="list-style-type: none"> <li>If protocol of the backend server group is gRPC, <b>http2_enable</b> of the listener must be set to <b>true</b>. QUIC is not supported.</li> </ul> <p>Minimum: <b>1</b><br/>Maximum: <b>255</b></p>   |
| session_persistence               | No        | CreatePoolSessionPersistenceOption object | Specifies the sticky session.  |
| slow_start                        | No        | CreatePoolSlowStartOption 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> <p>This parameter is not supported by gateway load balancers. Please do not use it.</p> |
| member_deletion_protection_enable | No        | Boolean                                   | <p>Specifies whether to enable removal protection for the load balancer.</p> <ul style="list-style-type: none"> <li><b>true</b>: Enable removal protection.</li> <li><b>false</b> (default): Disable removal protection.</li> </ul> <p><b>NOTE</b><br/>Disable removal protection for all your resources before deleting your account.</p> <p>This parameter is unsupported. Please do not use it.</p>   |

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| vpc_id    | No        | String | <p>Specifies the ID of the VPC where the backend server group works.</p> <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><li>• <b>vpc_id</b> must be specified for IP backend server groups. The value must be the same as that defined by <b>vpc_id</b> for the load balancer.</li><li>• If <b>vpc_id</b> is not specified, <b>vpc_id</b> is determined by the VPC where the backend server works.</li></ul> <p>Minimum: <b>0</b><br/>Maximum: <b>36</b></p> |

| 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. <b>type</b> cannot be set to <b>ip</b> if the backend server group protocol is <b>IP</b>.</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>.</li> </ul> <p>Minimum: <b>0</b><br/>Maximum: <b>36</b></p> |
| ip_version       | No        | String  | <p>Specifies the IP address version supported by the backend server group.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>20</b></p>  |
| target_rebalance | No        | Boolean | <p>Specifies whether to enable <b>target_rebalance</b>. If this option is enabled, traffic is redirected to a new backend server if a backend server goes offline or is removed.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• This parameter is supported only by IP backend server groups. The default value is <b>false</b>.</li> </ul> <p>Default: <b>false</b></p>   |

**Table 4-271** CreatePoolSessionPersistenceOption

| Parameter   | Mandatory | Type   | Description  |
|-------------|-----------|--------|--|
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is not supported by gateway load balancers. Please do not use it. 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> <p>This parameter is unsupported. Please do not use it.</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>.</p> <p>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>• 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></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, UDP, or QUIC, 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> <p>QUIC protocol is not supported.</p> |

**Table 4-272** 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><br/>Maximum: <b>1200</b><br/>Default: <b>30</b></p> |

## Response Parameters

Status code: 201

**Table 4-273** 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 4-274** Pool

| Parameter        | Type                                | Description   |
|------------------|-------------------------------------|---|
| admin_state_up   | Boolean                             | Specifies the administrative status of the backend server group.  |
| 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.  |
| 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><li>● <b>2_TUPLE_HASH</b>: 2-tuple hash that is only available for IP backend server groups</li><li>● <b>3_TUPLE_HASH</b>: 3-tuple hash that is only available for IP backend server groups</li><li>● <b>4_TUPLE_HASH</b>: 4-tuple hash that is only available for IP backend server groups Note:</li><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> <p>QUIC_CID is not supported.</p> |
| listeners        | Array of <b>ListenerRef</b> objects | Specifies the IDs of the listeners with which the backend server group is associated.   |

| Parameter     | Type   | Description   |
|---------------|--|---|
| 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.   |
| protocol      | String   | <p>Specifies the protocol used by the backend server group to receive requests.</p> <p>The value can be <b>TCP</b>, <b>UDP</b>, <b>IP</b>, <b>TLS</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>QUIC</b>.</p> <p>Note:</p> <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>IP</b>, the protocol of the backend server group must be <b>IP</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>, <b>HTTPS</b>, or <b>gRPC</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 listener's protocol is <b>QUIC</b>, the protocol of the backend server group can be <b>HTTP</b>, <b>HTTPS</b>, or <b>gRPC</b>.</li><li>• If the listener's protocol is <b>TLS</b>, the protocol of the backend server group can be <b>TLS</b> or <b>TCP</b>. If protocol of the backend server group is <b>TCP</b>, the <b>ip_version</b> must be set to <b>v4</b>.</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• If protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be set to <b>true</b>, with <b>type</b> set to <b>SOURCE_IP</b>.</li><li>• If protocol of the backend server group is <b>gRPC</b>, <b>http2_enable</b> of the listener must be set to <b>true</b>. <b>QUIC</b> is not supported.</li></ul> |

| Parameter                         | Type                                      | Description  |
|-----------------------------------|---|--|
| session_persistence               | <a href="#">SessionPersistence</a> object | Specifies the sticky session.  |
| ip_version                        | String                                    | Specifies the IP address version supported by the backend server group.  |
| slow_start                        | <a href="#">SlowStart</a> 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> |
| member_deletion_protection_enable | Boolean                                   | <p>Specifies whether to enable removal protection.</p> <ul style="list-style-type: none"><li>● <b>true</b>: Enable removal protection.</li><li>● <b>false</b>: Disable removal protection.</li></ul> <p><b>NOTE</b><br/>Disable removal protection for all your resources before deleting your account.</p> <p>This parameter is unsupported. Please do not use it.</p>  |
| 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).   |
| 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).  |
| vpc_id                            | String                                    | Specifies the ID of the VPC where the backend server group works.  |
| type                              | 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>                                     |
| enterprise_project_id             | String                                    | Specifies the enterprise project ID of the IP address group.   |



**Table 4-275** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-276** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-277** MemberRef

| Parameter | Type   | Description                      |
|-----------|--------|----------------------------------|
| id        | String | Specifies the backend server ID. |

**Table 4-278** SessionPersistence

| Parameter   | Type   | Description  |
|-------------|--------|--|
| cookie_name | String | <p>Specifies the cookie name.</p> <p>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> <p>This parameter is unsupported. Please do not use it.</p>  |
| type        | String | <p>Specifies the sticky session type. The value can be <b>SOURCE_IP</b>, <b>HTTP_COOKIE</b>, or <b>APP_COOKIE</b>.</p> <p>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>• 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></ul> |

| Parameter           | Type    | Description  |
|---------------------|---------|--|
| persistence_timeout | 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, UDP, or QUIC, 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> <p>QUIC protocol is not supported.</p> |

**Table 4-279** SlowStart

| Parameter | Type    | Description   |
|-----------|---------|---|
| enable    | 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  | Integer | <p>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>.</p> <p>Minimum: <b>30</b><br/>Maximum: <b>1200</b><br/>Default: <b>30</b></p> |

## 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
}
```

- Creating an IP backend server group for a gateway load balancer

POST https://{ELB\_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools

```
{
  "pool" : {
    "name" : "My IP pool",
    "lb_algorithm" : "2_tuple_hash",
    "listener_id" : "0b11747a-b139-492f-9692-2df0b1c87193",
    "protocol" : "IP",
    "type" : "instance",
    "target_rebalance" : true,
    "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](#).

## 4.11.2 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 4-280** Path Parameters

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

**Table 4-281** Query Parameters

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| marker    | No        | String | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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.<br>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 backend server group.  |
| healthmonitor_id | No        | Array   | Specifies the ID of the health check configured for the backend server group.<br>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.<br>Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .  |

| Parameter       | Mandatory | Type  | Description  |
|-----------------|-----------|-------|--|
| name            | No        | Array | Specifies the backend server group name.<br>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.<br>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, IP, TLS, HTTP, HTTPS, gRPC, or QUIC</b> .<br>QUIC is not supported.<br>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> <li>● <b>2_TUPLE_HASH</b>: 2-tuple hash that is only available for IP backend server groups</li> <li>● <b>3_TUPLE_HASH</b>: 3-tuple hash that is only available for IP backend server groups</li> <li>● <b>4_TUPLE_HASH</b>: 4-tuple hash that is only available for IP backend server groups</li> </ul> <p>Multiple algorithms can be queried in the format of <i>lb_algorithm=xxx&amp;lb_algorithm=m=xxx</i>.</p> <p>QUIC_CID is not supported.</p> |

| 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> |
| 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>   |
| member_address        | No        | Array | <p>Specifies the private IP address bound to the backend server. This is a query parameter and will not be 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   | 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.<br>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 removal protection on backend servers. <ul style="list-style-type: none"><li>• <b>true</b>: Enable removal protection.</li><li>• <b>false</b>: Disable removal protection.</li></ul> All backend servers will be queried if this parameter is not passed.<br>This parameter is unsupported. Please do not use it. |
| listener_id                       | No        | Array   | Specifies the IDs of the associated listeners, including the listeners associated through forwarding policies.<br>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.<br>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.<br>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> |

## Request Parameters

Table 4-282 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 4-283 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.                                   |
| pools      | Array of <a href="#">Pool</a> objects | Lists the backend server groups.                                |

**Table 4-284** 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 4-285** Pool

| Parameter        | Type    | Description  |
|------------------|---------|--|
| admin_state_up   | Boolean | Specifies the administrative status of the backend server group.   |
| 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.   |
| 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><li>● <b>2_TUPLE_HASH</b>: 2-tuple hash that is only available for IP backend server groups</li><li>● <b>3_TUPLE_HASH</b>: 3-tuple hash that is only available for IP backend server groups</li><li>● <b>4_TUPLE_HASH</b>: 4-tuple hash that is only available for IP backend server groups 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></li></ul> <p>QUIC_CID is not supported.</p> |

| Parameter     | Type   | Description  |
|---------------|--|--|
| 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.</p> <p>The value can be <b>TCP</b>, <b>UDP</b>, <b>IP</b>, <b>TLS</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>QUIC</b>.</p> <p>Note:</p> <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>IP</b>, the protocol of the backend server group must be <b>IP</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>, <b>HTTPS</b>, or <b>gRPC</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 listener's protocol is <b>QUIC</b>, the protocol of the backend server group can be <b>HTTP</b>, <b>HTTPS</b>, or <b>gRPC</b>.</li> <li>• If the listener's protocol is <b>TLS</b>, the protocol of the backend server group can be <b>TLS</b> or <b>TCP</b>. If protocol of the backend server group is <b>TCP</b>, the <b>ip_version</b> must be set to <b>v4</b>.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• If protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be set to <b>true</b>, with <b>type</b> set to <b>SOURCE_IP</b>.</li> <li>• If protocol of the backend server group is <b>gRPC</b>, <b>http2_enable</b> of the listener must be set to <b>true</b>. <b>QUIC</b> is not supported.</li> </ul> |
| session_persistence | <b>SessionPersistence</b> object | Specifies the sticky session.   |
| ip_version          | String                           | Specifies the IP address version supported by the backend server group.   |

| Parameter                         | Type                    | Description   |
|-----------------------------------|-------------------------|---|
| slow_start                        | <b>SlowStart</b> 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.<br><br>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 | Boolean                 | Specifies whether to enable removal protection.<br><ul style="list-style-type: none"> <li>● <b>true</b>: Enable removal protection.</li> <li>● <b>false</b>: Disable removal protection.</li> </ul> <b>NOTE</b><br>Disable removal protection for all your resources before deleting your account.<br><br>This parameter is unsupported. Please do not use it.  |
| 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).  |
| 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).   |
| 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.<br>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.  |

**Table 4-286** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-287** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-288** MemberRef

| Parameter | Type   | Description                      |
|-----------|--------|----------------------------------|
| id        | String | Specifies the backend server ID. |

**Table 4-289** SessionPersistence

| Parameter   | Type   | Description  |
|-------------|--------|--|
| cookie_name | String | <p>Specifies the cookie name.</p> <p>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> <p>This parameter is unsupported. Please do not use it.</p>  |
| type        | String | <p>Specifies the sticky session type. The value can be <b>SOURCE_IP</b>, <b>HTTP_COOKIE</b>, or <b>APP_COOKIE</b>.</p> <p>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>• 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></ul> |

| Parameter           | Type    | Description  |
|---------------------|---------|--|
| persistence_timeout | 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, UDP, or QUIC, 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> <p>QUIC protocol is not supported.</p> |

**Table 4-290** SlowStart

| Parameter | Type    | Description   |
|-----------|---------|---|
| enable    | 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  | Integer | <p>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>.</p> <p>Minimum: <b>30</b><br/>Maximum: <b>1200</b><br/>Default: <b>30</b></p> |

## 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](#).

## 4.11.3 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 4-291** 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 4-292** 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 4-293** 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 4-294 Pool

| Parameter        | Type   | Description   |
|------------------|--|---|
| admin_state_up   | Boolean  | Specifies the administrative status of the backend server group.  |
| 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.  |
| 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><li>● <b>2_TUPLE_HASH</b>: 2-tuple hash that is only available for IP backend server groups</li><li>● <b>3_TUPLE_HASH</b>: 3-tuple hash that is only available for IP backend server groups</li><li>● <b>4_TUPLE_HASH</b>: 4-tuple hash that is only available for IP backend server groups Note:</li><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> <p>QUIC_CID is not supported.</p> |
| 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.  |

| Parameter           | Type                                      | Description   |
|---------------------|---|---|
| project_id          | String                                    | Specifies the project ID.   |
| protocol            | String                                    | <p>Specifies the protocol used by the backend server group to receive requests.</p> <p>The value can be <b>TCP</b>, <b>UDP</b>, <b>IP</b>, <b>TLS</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>QUIC</b>.</p> <p>Note:</p> <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>IP</b>, the protocol of the backend server group must be <b>IP</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>, <b>HTTPS</b>, or <b>gRPC</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 listener's protocol is <b>QUIC</b>, the protocol of the backend server group can be <b>HTTP</b>, <b>HTTPS</b>, or <b>gRPC</b>.</li><li>• If the listener's protocol is <b>TLS</b>, the protocol of the backend server group can be <b>TLS</b> or <b>TCP</b>. If protocol of the backend server group is <b>TCP</b>, the <b>ip_version</b> must be set to <b>v4</b>.</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• If protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be set to <b>true</b>, with <b>type</b> set to <b>SOURCE_IP</b>.</li><li>• If protocol of the backend server group is <b>gRPC</b>, <b>http2_enable</b> of the listener must be set to <b>true</b>. <b>QUIC</b> is not supported.</li></ul> |
| session_persistence | <a href="#">SessionPersistence</a> object | Specifies the sticky session.   |
| ip_version          | String                                    | Specifies the IP address version supported by the backend server group.   |

| Parameter                         | Type                    | Description  |
|-----------------------------------|-------------------------|--|
| 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> |
| member_deletion_protection_enable | Boolean                 | <p>Specifies whether to enable removal protection.</p> <ul style="list-style-type: none"><li>● <b>true</b>: Enable removal protection.</li><li>● <b>false</b>: Disable removal protection.</li></ul> <p><b>NOTE</b><br/>Disable removal protection for all your resources before deleting your account.</p> <p>This parameter is unsupported. Please do not use it.</p>  |
| 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).   |
| 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).  |
| vpc_id                            | String                  | Specifies the ID of the VPC where the backend server group works.  |
| type                              | 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>                                     |
| enterprise_project_id             | String                  | Specifies the enterprise project ID of the IP address group.   |

**Table 4-295** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-296** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-297** MemberRef

| Parameter | Type   | Description                      |
|-----------|--------|----------------------------------|
| id        | String | Specifies the backend server ID. |

**Table 4-298** SessionPersistence

| Parameter   | Type   | Description  |
|-------------|--------|--|
| cookie_name | String | <p>Specifies the cookie name.</p> <p>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> <p>This parameter is unsupported. Please do not use it.</p>  |
| type        | String | <p>Specifies the sticky session type. The value can be <b>SOURCE_IP</b>, <b>HTTP_COOKIE</b>, or <b>APP_COOKIE</b>.</p> <p>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>• 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></ul> |

| Parameter           | Type    | Description   |
|---------------------|---------|---|
| persistence_timeout | 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, UDP, or QUIC, 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> <p>QUIC protocol is not supported.</p> |

Table 4-299 SlowStart

| Parameter | Type    | Description   |
|-----------|---------|---|
| enable    | 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  | Integer | <p>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>.</p> <p>Minimum: <b>30</b><br/>Maximum: <b>1200</b><br/>Default: <b>30</b></p> |

## 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](#).

## 4.11.4 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 4-300** 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 4-301** Request header parameters

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

**Table 4-302** Request body parameters

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

**Table 4-303** 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.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |

| Parameter           | Mandatory | Type   | Description   |
|---------------------|-----------|--|---|
| lb_algorithm        | No        | 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> <li>● <b>2_TUPLE_HASH</b>: 2-tuple hash that is only available for IP backend server groups</li> <li>● <b>3_TUPLE_HASH</b>: 3-tuple hash that is only available for IP backend server groups</li> <li>● <b>5_TUPLE_HASH</b>: 5-tuple hash that is only available for IP backend server groups</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> <p>QUIC_CID is not supported.</p> |
| name                | No        | String   | <p>Specifies the backend server group name.</p> <p>Minimum: <b>0</b></p> <p>Maximum: <b>255</b></p>   |
| session_persistence | No        | <b>UpdatePoolSessionPersistenceOption</b> object | Specifies the sticky session.   |

| Parameter                         | Mandatory | Type   | Description  |
|-----------------------------------|-----------|--|--|
| slow_start                        | No        | <a href="#">UpdatePoolSlowStartOption</a> 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> <p>This parameter is not supported by gateway load balancers. Please do not use it.</p> |
| member_deletion_protection_enable | No        | Boolean  | <p>Specifies whether to enable removal protection for the load balancer.</p> <ul style="list-style-type: none"> <li>• <b>true</b>: Enable removal protection.</li> <li>• <b>false</b>: Disable removal protection.</li> </ul> <p><b>NOTE</b><br/>Disable removal protection for all your resources before deleting your account.</p> <p>This parameter is unsupported. Please do not use it.</p>   |
| vpc_id                            | No        | String   | <p>Specifies the ID of the VPC where the backend server group works.</p> <p><b>vpc_id</b> must be specified for IP backend server groups. The value must be the same as that defined by <b>vpc_id</b> for the load balancer.</p> <p>This parameter can be updated only when <b>vpc_id</b> is left blank.</p> <p>Minimum: <b>0</b><br/>Maximum: <b>36</b></p>   |

| 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. <b>type</b> cannot be set to <b>ip</b> if the backend server group protocol is <b>IP</b>.</li> <li>• <b>""</b>: Any type of backend servers can be added.</li> </ul> <p>Note: This parameter can be updated only when <b>type</b> is left blank.</p> |
| pool_health | No        | <b>PoolHealth</b> object | Specifies the configurations of the pool health feature.   |

**Table 4-304** UpdatePoolSessionPersistenceOption

| Parameter   | Mandatory | Type   | Description   |
|-------------|-----------|--------|---|
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>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> <p>This parameter is not supported by gateway load balancers. Please do not use it.</p> <p>This parameter is unsupported. Please do not use it.</p> |

| Parameter           | Mandatory | Type    | Description  |
|---------------------|-----------|---------|--|
| type                | No        | String  | <p>Specifies the sticky session type. The value can be <b>SOURCE_IP</b>, <b>HTTP_COOKIE</b>, or <b>APP_COOKIE</b>.</p> <p>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>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> </ul> <p>QUIC protocol is not supported.</p>   |
| 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, UDP, or QUIC, 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> <p>QUIC protocol is not supported.</p> |

**Table 4-305** UpdatePoolSlowStartOption

| 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> |

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

**Table 4-306** 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 4-307** 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 4-308** Pool

| Parameter        | Type    | Description   |
|------------------|---------|---|
| admin_state_up   | Boolean | Specifies the administrative status of the backend server group.              |
| 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. |

| Parameter     | Type   | Description   |
|---------------|--|---|
| 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><li>● <b>2_TUPLE_HASH</b>: 2-tuple hash that is only available for IP backend server groups</li><li>● <b>3_TUPLE_HASH</b>: 3-tuple hash that is only available for IP backend server groups</li><li>● <b>4_TUPLE_HASH</b>: 4-tuple hash that is only available for IP backend server groups Note:</li><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> <p>QUIC_CID is not supported.</p> |
| 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.</p> <p>The value can be <b>TCP</b>, <b>UDP</b>, <b>IP</b>, <b>TLS</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>QUIC</b>.</p> <p>Note:</p> <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>IP</b>, the protocol of the backend server group must be <b>IP</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>, <b>HTTPS</b>, or <b>gRPC</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 listener's protocol is <b>QUIC</b>, the protocol of the backend server group can be <b>HTTP</b>, <b>HTTPS</b>, or <b>gRPC</b>.</li><li>• If the listener's protocol is <b>TLS</b>, the protocol of the backend server group can be <b>TLS</b> or <b>TCP</b>. If protocol of the backend server group is <b>TCP</b>, the <b>ip_version</b> must be set to <b>v4</b>.</li></ul> <p>Note:</p> <ul style="list-style-type: none"><li>• If protocol of the backend server group is <b>QUIC</b>, <b>session_persistence</b> must be set to <b>true</b>, with <b>type</b> set to <b>SOURCE_IP</b>.</li><li>• If protocol of the backend server group is <b>gRPC</b>, <b>http2_enable</b> of the listener must be set to <b>true</b>. <b>QUIC</b> is not supported.</li></ul> |
| session_persistence | <b>SessionPersistence</b> object | Specifies the sticky session.   |
| ip_version          | String                           | Specifies the IP address version supported by the backend server group.   |



| Parameter                         | Type                       | Description  |
|-----------------------------------|----------------------------|--|
| slow_start                        | <b>SlowStart</b><br>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> |
| member_deletion_protection_enable | Boolean                    | <p>Specifies whether to enable removal protection.</p> <ul style="list-style-type: none"><li>● <b>true</b>: Enable removal protection.</li><li>● <b>false</b>: Disable removal protection.</li></ul> <p><b>NOTE</b><br/>Disable removal protection for all your resources before deleting your account.</p> <p>This parameter is unsupported. Please do not use it.</p>  |
| 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).   |
| 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).  |
| vpc_id                            | String                     | Specifies the ID of the VPC where the backend server group works.  |
| type                              | 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>                                     |
| enterprise_project_id             | String                     | Specifies the enterprise project ID of the IP address group.   |

**Table 4-309** ListenerRef

| Parameter | Type   | Description                |
|-----------|--------|----------------------------|
| id        | String | Specifies the listener ID. |

**Table 4-310** LoadBalancerRef

| Parameter | Type   | Description                     |
|-----------|--------|---------------------------------|
| id        | String | Specifies the load balancer ID. |

**Table 4-311** MemberRef

| Parameter | Type   | Description                      |
|-----------|--------|----------------------------------|
| id        | String | Specifies the backend server ID. |

**Table 4-312** SessionPersistence

| Parameter   | Type   | Description  |
|-------------|--------|--|
| cookie_name | String | <p>Specifies the cookie name.</p> <p>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> <p>This parameter is unsupported. Please do not use it.</p>  |
| type        | String | <p>Specifies the sticky session type. The value can be <b>SOURCE_IP</b>, <b>HTTP_COOKIE</b>, or <b>APP_COOKIE</b>.</p> <p>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>• 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></ul> |

| Parameter           | Type    | Description  |
|---------------------|---------|--|
| persistence_timeout | 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, UDP, or QUIC, 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> <p>QUIC protocol is not supported.</p> |

**Table 4-313** SlowStart

| Parameter | Type    | Description   |
|-----------|---------|---|
| enable    | 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  | Integer | <p>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>.</p> <p>Minimum: <b>30</b><br/>Maximum: <b>1200</b><br/>Default: <b>30</b></p> |

## 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](#).

## 4.11.5 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 4-314** 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 4-315** 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](#).

## 4.12 Backend Server

### 4.12.1 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.
- If the backend server group protocol is IP, **protocol\_port** of the backend server must be **0** and IP as backend servers cannot be added.

#### Calling Method

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

#### URI

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

**Table 4-316** 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 4-317** Request header parameters

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

**Table 4-318** Request body parameters

| Parameter | Mandatory | Type                      | Description                   |
|-----------|-----------|---------------------------|-------------------------------|
| member    | Yes       | CreateMemberOption object | Specifies the backend server. |

**Table 4-319** 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><br/>Maximum: <b>64</b></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> .<br><br>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> .  |
| name           | No        | String  | 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.<br><br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| project_id     | No        | String  | Specifies the project ID.<br><br>Minimum: <b>1</b><br>Maximum: <b>32</b>  |
| protocol_port  | No        | Integer | Specifies the port used by the backend server to receive requests. <b>protocol_port</b> must be set to <b>0</b> for gateway load balancers with IP backend server groups associated.<br><br><b>NOTE</b><br>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.<br><br>Minimum: <b>1</b><br>Maximum: <b>65535</b> |



| Parameter      | Mandatory | Type   | Description   |
|----------------|-----------|--------|---|
| subnet_cidr_id | No        | String | <p>Specifies the ID of the IPv4 or IPv6 subnet where the backend server resides. <b>neutron_subnet_id</b> defines IPv4 subnets, and <b>neutron_network_id</b> defines IPv6 subnets.</p> <p>You can query parameters <b>neutron_subnet_id</b> and <b>neutron_network_id</b> in the response by calling the API GET https:// {VPC_Endpoint}/v1/ {project_id}/subnets to get the IPv4 subnet ID and IPv6 subnet ID respectively.</p> <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_target_enable</b> is set to <b>true</b>, this parameter can be left blank. 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> <li>• If <b>ip_target_enable</b> is set to <b>false</b>, this parameter must be specified.</li> <li>• This parameter must be specified for gateway load balancers. The subnet of the backend server must be in the same VPC as that of the load balancer.</li> </ul> <p>Minimum: <b>1</b><br/>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.<br><br>If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b> , this parameter will not take effect. |

## Response Parameters

Status code: 201

**Table 4-320** 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 4-321** Member

| Parameter  | Type   | Description   |
|------------|--------|---|
| id         | String | Specifies the backend server ID.<br>Note:<br>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  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br>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 IPv4 or IPv6 subnet where the backend server resides.<br><b>neutron_subnet_id</b> defines IPv4 subnets, and <b>neutron_network_id</b> defines IPv6 subnets.<br>You can query parameters <b>neutron_subnet_id</b> and <b>neutron_network_id</b> in the response by calling the API GET <a href="https://vpc_endpoint/v1/{project_id}/subnets">https://{VPC_Endpoint}/v1/{project_id}/subnets</a> to get the IPv4 subnet ID and IPv6 subnet ID respectively.<br>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_target_enable</b> is set to <b>true</b>, this parameter can be left blank. 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> <li>If <b>ip_target_enable</b> is set to <b>false</b>, this parameter must be specified.</li> <li>This parameter must be specified for gateway load balancers. The subnet of the backend server must be in the same VPC as that of the load balancer.</li> </ul> |
| protocol_port  | Integer | Specifies the port used by the backend server to receive requests. <b>protocol_port</b> must be set to <b>0</b> for gateway load balancers with IP backend server groups associated.<br><b>NOTE</b><br>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.<br>Minimum: <b>1</b><br>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><br/>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>  |
| 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>  |
| created_at       | String                               | <p>Specifies the time when a backend server was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p>   |

| Parameter   | Type   | Description   |
|-------------|--------|---|
| 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).  |
| member_type | String | Specifies the type of the backend server.<br>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 4-322** 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> |

## 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 an IP address as a backend server

```
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 3: Adding a backend server to an IP backend server group

POST [https://{ELB\\_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members](https://{ELB_Endpoint}/v3/99a3fff0d03c428eac3678da6a7d0f24/elb/pools/36ce7086-a496-4666-9064-5ba0e6840c75/members)

```
{  
  "member" : {  
    "protocol_port" : 0,  
    "name" : "My IP pool 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](#).

## 4.12.2 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 4-323** 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 4-324** Query Parameters

| Parameter | Mandatory | Type    | Description   |
|-----------|-----------|---------|---|
| marker    | No        | String  | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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 larger 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> .<br>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.<br>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.<br>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.<br>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.<br>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</li></ul> Multiple values can be queried in the format of <i>member_type=xxx&amp;member_type=xxx</i> . |
| 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.<br><br>Multiple instance id can be queried in the format of <i>instance_id=xxx&amp;instance_id=xxx</i> .                 |

## Request Parameters

**Table 4-325** 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 4-326** 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 4-327** 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 4-328** Member

| Parameter      | Type    | Description   |
|----------------|---------|---|
| id             | String  | Specifies the backend server ID.<br>Note:<br>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.   |
| 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 IPv4 or IPv6 subnet where the backend server resides. <b>neutron_subnet_id</b> defines IPv4 subnets, and <b>neutron_network_id</b> defines IPv6 subnets.</p> <p>You can query parameters <b>neutron_subnet_id</b> and <b>neutron_network_id</b> in the response by calling the API GET <a href="https://{VPC_Endpoint}/v1/{project_id}/subnets">https://{VPC_Endpoint}/v1/{project_id}/subnets</a> to get the IPv4 subnet ID and IPv6 subnet ID respectively.</p> <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_target_enable</b> is set to <b>true</b>, this parameter can be left blank. 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> <li>• If <b>ip_target_enable</b> is set to <b>false</b>, this parameter must be specified.</li> <li>• This parameter must be specified for gateway load balancers. The subnet of the backend server must be in the same VPC as that of the load balancer.</li> </ul> |
| protocol_port  | Integer | <p>Specifies the port used by the backend server to receive requests. <b>protocol_port</b> must be set to <b>0</b> for gateway load balancers with IP backend server groups associated.</p> <p><b>NOTE</b><br/>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><br/>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><br/>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>  |
| 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>  |
| created_at       | String                               | <p>Specifies the time when a backend server was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p>   |

| Parameter   | Type   | Description  |
|-------------|--------|--|
| 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).   |
| 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 4-329** 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> |

## 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](#).

## 4.12.3 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 4-330** 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.   |
| member_id  | Yes       | String | Specifies the backend server ID.<br>Note:<br>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 4-331** 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 4-332** 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 4-333 Member

| Parameter      | Type    | Description   |
|----------------|---------|---|
| id             | String  | Specifies the backend server ID.<br>Note:<br>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.   |
| admin_state_up | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br>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 IPv4 or IPv6 subnet where the backend server resides.<br><b>neutron_subnet_id</b> defines IPv4 subnets, and <b>neutron_network_id</b> defines IPv6 subnets.<br>You can query parameters <b>neutron_subnet_id</b> and <b>neutron_network_id</b> in the response by calling the API GET <a href="https://{VPC_Endpoint}/v1/{project_id}/subnets">https://{VPC_Endpoint}/v1/{project_id}/subnets</a> to get the IPv4 subnet ID and IPv6 subnet ID respectively.<br>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_target_enable</b> is set to <b>true</b>, this parameter can be left blank. 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><li>• If <b>ip_target_enable</b> is set to <b>false</b>, this parameter must be specified.</li><li>• This parameter must be specified for gateway load balancers. The subnet of the backend server must be in the same VPC as that of the load balancer.</li></ul> |

| Parameter     | Type    | Description  |
|---------------|---------|--|
| protocol_port | Integer | <p>Specifies the port used by the backend server to receive requests. <b>protocol_port</b> must be set to <b>0</b> for gateway load balancers with IP backend server groups associated.</p> <p><b>NOTE</b><br/>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><br/>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><br/>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  |
|------------------|--------------------------------------|--|
| 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.  |
| 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).   |
| 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).   |
| 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 4-334** 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> |

## 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](#).

## 4.12.4 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 4-335** Path Parameters

| Parameter  | Mandatory | Type   | Description   |
|------------|-----------|--------|---|
| member_id  | Yes       | String | Specifies the backend server ID.<br>Note:<br>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 4-336** Request header parameters

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

**Table 4-337** Request body parameters

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

**Table 4-338** 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.<br>Minimum: <b>0</b><br>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.<br>If <b>lb_algorithm</b> is set to <b>SOURCE_IP</b> , this parameter will not take effect.<br>Minimum: <b>0</b><br>Maximum: <b>100</b> |

| Parameter     | Mandatory | Type    | Description   |
|---------------|-----------|---------|---|
| protocol_port | No        | Integer | <p>Specifies the port used by the backend server to receive requests.</p> <p><b>protocol_port</b> must be set to <b>0</b> for gateway load balancers with IP backend server groups associated.</p> <p><b>NOTE</b><br/>This parameter cannot be updated if <b>any_port_enable</b> is set to <b>true</b> for a backend server group.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>65535</b></p> |

## Response Parameters

Status code: 200

Table 4-339 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 4-340 Member

| Parameter  | Type   | Description   |
|------------|--------|---|
| id         | String | <p>Specifies the backend server ID.</p> <p>Note:<br/>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.</p> |
| 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  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br>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 IPv4 or IPv6 subnet where the backend server resides.<br><b>neutron_subnet_id</b> defines IPv4 subnets, and <b>neutron_network_id</b> defines IPv6 subnets.<br>You can query parameters <b>neutron_subnet_id</b> and <b>neutron_network_id</b> in the response by calling the API GET <a href="https://v1/{project_id}/subnets">https://{VPC_Endpoint}/v1/{project_id}/subnets</a> to get the IPv4 subnet ID and IPv6 subnet ID respectively.<br>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_target_enable</b> is set to <b>true</b>, this parameter can be left blank. 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><li>• If <b>ip_target_enable</b> is set to <b>false</b>, this parameter must be specified.</li><li>• This parameter must be specified for gateway load balancers. The subnet of the backend server must be in the same VPC as that of the load balancer.</li></ul> |
| protocol_port  | Integer | Specifies the port used by the backend server to receive requests. <b>protocol_port</b> must be set to <b>0</b> for gateway load balancers with IP backend server groups associated.<br><b>NOTE</b><br>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.<br>Minimum: <b>1</b><br>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><br/>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>  |
| 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>  |
| created_at       | String                               | <p>Specifies the time when a backend server was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).</p>   |

| Parameter   | Type   | Description   |
|-------------|--------|---|
| 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).  |
| member_type | String | Specifies the type of the backend server.<br>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 4-341** 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> |

## 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](#).

## 4.12.5 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 4-342** Path Parameters

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

| 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><br>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.<br>You can obtain the server ID by calling the API for querying the backend servers. |

## Request Parameters

Table 4-343 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](#).

# 4.13 Health Check

## 4.13.1 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 4-344** Path Parameters

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

### Request Parameters

**Table 4-345** Request header parameters

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

**Table 4-346** Request body parameters

| Parameter     | Mandatory | Type                             | Description                 |
|---------------|-----------|----------------------------------|-----------------------------|
| healthmonitor | Yes       | CreateHealthMonitorOption object | Specifies the health check. |

**Table 4-347** 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.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.<br>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.<br>This parameter is available only when <b>type</b> is set to <b>HTTP</b> .<br>Minimum: <b>1</b><br>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>, <b>HTTPS</b>, or <b>gRPC</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>If <b>type</b> is set to <b>gRPC</b>, the default value is <b>0</b>. If <b>type</b> is set to other protocols, the default value is <b>200</b>.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>64</b></p> |
| http_method    | No        | String  | <p>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>.</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> <p>Minimum: <b>1</b><br/>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>.</p> <p>The value ranges from <b>1</b> to <b>10</b>.</p> <p>Minimum: <b>1</b><br/>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> .<br>The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> .<br>Minimum: <b>1</b><br>Maximum: <b>10</b>   |
| monitor_port     | No        | Integer | Specifies the port used for the health check. This parameter is left blank by default, indicating that a port of the backend server will be used by default. The port number ranges from 1 to 65535. If the backend server group protocol is IP, <b>monitor_port</b> cannot be <b>0</b> .<br><b>NOTE</b><br>This parameter is mandatory if <b>any_port_enable</b> is set to <b>true</b> for a backend server group.<br>Minimum: <b>1</b><br>Maximum: <b>65535</b> |
| name             | No        | String  | Specifies the health check name.<br>Minimum: <b>0</b><br>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.<br>Minimum: <b>1</b><br>Maximum: <b>32</b>  |

| Parameter | Mandatory | Type    | Description  |
|-----------|-----------|---------|--|
| 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> .<br>Minimum: <b>1</b><br>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>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server 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 is IP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is gRPC, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is TLS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> </ul> <p>QUIC protocol is not supported.</p> |

| 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>Default: /</p> <p>Minimum: 1</p> <p>Maximum: 80</p> |

## Response Parameters

Status code: 201

Table 4-348 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 4-349 HealthMonitor

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | <p>Specifies the administrative status of the health check.</p> <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> |

| Parameter      | Type    | Description  |
|----------------|---------|--|
| delay          | Integer | Specifies the interval between health checks, in seconds. The value ranges from <b>1</b> to <b>50</b> .<br>Minimum: <b>1</b><br>Maximum: <b>50</b>   |
| domain_name    | String  | Specifies the domain name that HTTP requests are sent to during the health check.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.<br>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.<br>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> , <b>HTTPS</b> or <b>gRPC</b> .<br>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> If <b>type</b> is set to <b>gRPC</b> , the default value is <b>0</b> . If <b>type</b> is set to other protocols, the default value is <b>200</b> . |
| 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> .<br>This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> .<br>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> .<br>The value ranges from <b>1</b> to <b>10</b><br>Minimum: <b>1</b><br>Maximum: <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> .<br>The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> .<br>Minimum: <b>1</b><br>Maximum: <b>10</b>   |
| monitor_port     | Integer                         | Specifies the port used for the health check. This parameter is left blank by default, indicating that a port of the backend server will be used by default. The port number ranges from 1 to 65535. If the backend server group protocol is IP, <b>monitor_port</b> cannot be <b>0</b> .<br>Minimum: <b>1</b><br>Maximum: <b>65535</b> |
| name             | String                          | Specifies the health check name.  |
| pools            | Array of <b>PoolRef</b> 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> .<br>Minimum: <b>1</b><br>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>, <b>HTTPS</b>, <b>gRPC</b> or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server 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 is IP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is gRPC, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is TLS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> </ul> <p>QUIC protocol is not supported.</p> |
| 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>   |
| 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>  |

**Table 4-350** PoolRef

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

## Example Requests

- Configuring a health check for an HTTP backend server group

```
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 2: Configuring a health check for an IP backend server group

```
{
  "healthmonitor": {
    "name": "My Healthmonitor",
    "max_retries": 3,
    "pool_id": "488acc50-6bcf-423d-8f0a-0f4184f5b8a0",
    "type": "HTTP",
    "timeout": 30,
    "delay": 1,
    "port": 80
  }
}
```

## 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](#).

## 4.13.2 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 4-351** Path Parameters

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

**Table 4-352** Query Parameters

| Parameter    | Mandatory | Type    | Description   |
|--------------|-----------|---------|---|
| marker       | No        | String  | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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.<br>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.<br>Multiple ports can be queried in the format of <i>monitor_port=xxx&amp;monitor_port=xxx</i> .  |

| Parameter      | Mandatory | Type    | Description   |
|----------------|-----------|---------|---|
| domain_name    | No        | Array   | Specifies the domain name to which HTTP requests are sent during the health check.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.<br>Multiple domain names can be queried in the format of <i>domain_name=xxx&amp;domain_name=xxx</i> . |
| name           | No        | Array   | Specifies the health check name.<br>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> .<br>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> .<br>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.<br>The value can be <b>true</b> (health check is enabled) or <b>false</b> (health check is disabled).  |

| Parameter        | Mandatory | Type    | Description   |
|------------------|-----------|---------|---|
| 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.   |
| type             | No        | Array   | Specifies the health check protocol. The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , <b>HTTP</b> , <b>HTTPS</b> , <b>TLS</b> , or <b>gRPC</b> . Multiple protocols can be queried in the format of <i>type=xxx&amp;type=xxx</i> .  |
| expected_codes   | No        | Array   | Specifies the expected HTTP status code. This parameter will take effect only when <b>type</b> is set to <b>HTTP</b> , <b>HTTPS</b> , or <b>gRPC</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             | Mandatory | Type  | Description  |
|-----------------------|-----------|-------|--|
| 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>   |
| http_method           | No        | Array | <p>Specifies the HTTP method. The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, or 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 4-353** 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 4-354** Response body parameters

| Parameter      | Type                                  | Description   |
|----------------|---------------------------------------|---|
| request_id     | String                                | Specifies the request ID. The value is automatically generated. |
| page_info      | <b>PageInfo</b> object                | Shows pagination information.                                   |
| healthmonitors | Array of <b>HealthMonitor</b> objects | Specifies the health check.                                     |

**Table 4-355** 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 4-356** 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> .<br>Minimum: <b>1</b><br>Maximum: <b>50</b>   |
| domain_name    | String  | Specifies the domain name that HTTP requests are sent to during the health check.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.<br>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.<br>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> , <b>HTTPS</b> or <b>gRPC</b> .<br>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> If <b>type</b> is set to <b>gRPC</b> , the default value is <b>0</b> . If <b>type</b> is set to other protocols, the default value is <b>200</b> . |
| 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> .<br>This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> .<br>This parameter is unsupported. Please do not use it.   |
| id             | String  | Specifies the health check ID.   |

| Parameter        | Type                                     | Description   |
|------------------|--|---|
| 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><br>Minimum: <b>1</b><br>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> .<br>The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> .<br>Minimum: <b>1</b><br>Maximum: <b>10</b>   |
| monitor_port     | Integer                                  | Specifies the port used for the health check. This parameter is left blank by default, indicating that a port of the backend server will be used by default. The port number ranges from 1 to 65535. If the backend server group protocol is IP, <b>monitor_port</b> cannot be <b>0</b> .<br>Minimum: <b>1</b><br>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> .<br>Minimum: <b>1</b><br>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>, <b>HTTPS</b>, <b>gRPC</b> or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server 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 is IP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is gRPC, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is TLS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> </ul> <p>QUIC protocol is not supported.</p> |
| 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>   |
| 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>  |

**Table 4-357** 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](#).

## 4.13.3 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 4-358** 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 4-359** 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 4-360** 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 4-361** 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> .<br>Minimum: <b>1</b><br>Maximum: <b>50</b>   |
| domain_name    | String  | Specifies the domain name that HTTP requests are sent to during the health check.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.<br>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.<br>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> , <b>HTTPS</b> or <b>gRPC</b> .<br>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> If <b>type</b> is set to <b>gRPC</b> , the default value is <b>0</b> . If <b>type</b> is set to other protocols, the default value is <b>200</b> . |

| 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> .<br><br>This parameter is available when <b>type</b> is set to <b>HTTP</b> or <b>HTTPS</b> .<br><br>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> .<br><br>The value ranges from <b>1</b> to <b>10</b><br>Minimum: <b>1</b><br>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> .<br><br>The value ranges from <b>1</b> to <b>10</b> , and the default value is <b>3</b> .<br>Minimum: <b>1</b><br>Maximum: <b>10</b>  |
| monitor_port    | Integer                                  | Specifies the port used for the health check. This parameter is left blank by default, indicating that a port of the backend server will be used by default. The port number ranges from 1 to 65535. If the backend server group protocol is IP, <b>monitor_port</b> cannot be <b>0</b> .<br>Minimum: <b>1</b><br>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.  |

| Parameter | Type    | Description  |
|-----------|---------|--|
| timeout   | Integer | <p>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>.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>50</b></p>  |
| type      | String  | <p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b> or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server 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 is IP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is gRPC, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is TLS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> </ul> <p>QUIC protocol is not supported.</p> |
| 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>   |

| Parameter  | Type   | Description   |
|------------|--------|---|
| created_at | String | Specifies the time when the health check was configured. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time). |
| updated_at | String | Specifies the time when the health check was updated. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).    |

**Table 4-362** 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](#).

## 4.13.4 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 4-363** 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 4-364** Request header parameters

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



**Table 4-365** Request body parameters

| Parameter     | Mandatory | Type   | Description                 |
|---------------|-----------|--|-----------------------------|
| healthmonitor | Yes       | <a href="#">UpdateHealthMonitorOption</a> object | Specifies the health check. |

**Table 4-366** 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> .<br>Minimum: <b>1</b><br>Maximum: <b>50</b>  |
| domain_name    | No        | String  | Specifies the domain name that HTTP requests are sent to during the health check.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.<br>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.<br>This parameter is available only when <b>type</b> is set to <b>HTTP</b> .<br>Minimum: <b>1</b><br>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>, <b>HTTPS</b>, or <b>gRPC</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>Minimum: <b>1</b><br/>Maximum: <b>64</b></p> |
| http_method    | No        | String  | <p>Specifies the HTTP method.</p> <p>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>.</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><br/>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><br/>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> .<br>Minimum: <b>1</b><br>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. The port number ranges from 1 to 65535. If the backend server group protocol is IP, <b>monitor_port</b> cannot be <b>0</b> .<br>Minimum: <b>1</b><br>Maximum: <b>65535</b> |
| name             | No        | String  | Specifies the health check name.<br>Minimum: <b>0</b><br>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> .<br>Minimum: <b>1</b><br>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><br/>Maximum: <b>80</b></p> |

| Parameter | Mandatory | Type   | Description  |
|-----------|-----------|--------|--|
| type      | No        | String | <p>Specifies the health check protocol. The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b> or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server 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 is IP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is gRPC, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is TLS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> </ul> <p>QUIC protocol is not supported.</p> |

## Response Parameters

Status code: 200

**Table 4-367** 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 4-368** 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> .<br>Minimum: <b>1</b><br>Maximum: <b>50</b>  |
| domain_name    | String  | Specifies the domain name that HTTP requests are sent to during the health check.<br>The value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter.<br>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.<br>This parameter is available only when <b>type</b> is set to <b>HTTP</b> . |

| Parameter        | Type    | Description   |
|------------------|---------|---|
| 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>, <b>HTTPS</b> or <b>gRPC</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>If <b>type</b> is set to <b>gRPC</b>, the default value is <b>0</b>. If <b>type</b> is set to other protocols, the default value is <b>200</b>.</p> |
| http_method      | String  | <p>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>.</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>   |
| max_retries_down | Integer | <p>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>.</p> <p>The value ranges from <b>1</b> to <b>10</b>, and the default value is <b>3</b>.</p> <p>Minimum: <b>1</b></p> <p>Maximum: <b>10</b></p>   |

| Parameter    | Type                                     | Description   |
|--------------|--|---|
| monitor_port | Integer                                  | Specifies the port used for the health check. This parameter is left blank by default, indicating that a port of the backend server will be used by default. The port number ranges from 1 to 65535. If the backend server group protocol is IP, <b>monitor_port</b> cannot be <b>0</b> .<br>Minimum: <b>1</b><br>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> .<br>Minimum: <b>1</b><br>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>, <b>HTTPS</b>, <b>gRPC</b> or <b>TLS</b>.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server is QUIC, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server is UDP, the value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server 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 is IP, the value can only be <b>TCP</b>, <b>HTTP</b>, or <b>HTTPS</b>.</li> <li>• If the protocol of the backend server is HTTP, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is HTTPS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is gRPC, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> <li>• If the protocol of the backend server is TLS, the value can only be <b>TCP</b>, <b>HTTP</b>, <b>HTTPS</b>, <b>gRPC</b>, or <b>TLS</b>.</li> </ul> <p>QUIC protocol is not supported.</p> |
| 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>   |
| 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>  |

**Table 4-369** 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](#).

### 4.13.5 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 4-370** 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 4-371** 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](#).

# 4.14 Forwarding Policy

## 4.14.1 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 4-372** Path Parameters

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

## Request Parameters

**Table 4-373** Request header parameters

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

**Table 4-374** Request body parameters

| Parameter | Mandatory | Type  | Description                      |
|-----------|-----------|---|----------------------------------|
| l7policy  | Yes       | <a href="#">CreateL7PolicyOption</a> object | Specifies the forwarding policy. |

**Table 4-375** 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><br/>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.<br>Minimum: <b>0</b><br>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.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |
| position    | No        | Integer | Specifies the forwarding policy priority. The value cannot be updated.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>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 forwarding policies of the same listener. This parameter will take effect only 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. This parameter is unsupported for shared load balancers.</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 <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is not enabled, forwarding policies are automatically prioritized based on the original policy sorting logic. The priorities of domain names are independent from each other. For the same domain name, the priorities are sorted in the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If the matching types are the same, the longer the URL is, the higher the priority is. 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,</li></ul> |



| Parameter            | Mandatory | Type   | Description  |
|----------------------|-----------|--------|--|
|                      |           |        | <p>the priority will be a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to be created because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, specify a value or adjust the priorities of existing forwarding policies. If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</p> <p>Minimum: <b>0</b><br/>Maximum: <b>10000</b></p> |
| project_id           | No        | String | <p>Specifies the ID of the project where the forwarding policy is used.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>32</b></p>  |
| 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> </ul>  |

| Parameter        | Mandatory | Type   | Description   |
|------------------|-----------|--------|---|
| redirect_pool_id | No        | String | 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> . Note: <ul style="list-style-type: none"><li>• If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, specify either <b>redirect_pool_id</b> or <b>redirect_pools_config</b>. If both are specified, only <b>redirect_pools_config</b> takes effect.</li><li>• This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</li></ul> |
| redirect_url     | No        | String | Specifies the URL to which requests are forwarded.<br>Format: <i>protocol://host:port/path?query</i><br>Minimum: <b>1</b><br>Maximum: <b>255</b>  |

| 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.)</p> <p>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.</p> |

| Parameter                    | Mandatory | Type                                      | Description  |
|------------------------------|-----------|---|--|
| fixed_response_config        | No        | CreateFixedResponseConfig object          | 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.<br><br>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> .  |
| redirect_pools_extend_config | No        | CreateRedirectPoolsExtendConfig 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> .   |
| rules                        | No        | Array of CreateL7PolicyRuleOption objects | Lists the forwarding rules in the forwarding policy.<br>The list can contain a maximum of 10 forwarding rules (if <b>conditions</b> is specified, a condition is considered as a rule).<br>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: <ul style="list-style-type: none"> <li>• The entire list will be replaced if you update it.</li> <li>• If the action of <b>l7policy</b> is set to <b>Redirect to another listener</b>, <b>l7rule</b> cannot be created.</li> </ul> |

**Table 4-376** 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>                                   |
| 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></p> <p>Minimum: <b>1</b></p> <p>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></p> <p>Minimum: <b>1</b></p> <p>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;'()*+,-./:;=?@^_`</code></p> <p>Default: <b>#{query}</b><br/>Minimum: <b>0</b><br/>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><br/>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 4-377** CreateInsertHeadersConfig

| Parameter | Mandatory | Type  | Description  |
|-----------|-----------|---|--|
| configs   | Yes       | Array of <a href="#">CreateInsertHeaderConfig</a> objects | Specifies the headers you want to write into the request that matches the condition. |

**Table 4-378** 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> .  |

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| value     | Yes       | String | <p>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>.</p> <p>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.</p> |

**Table 4-379** CreateRemoveHeadersConfig

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--|---|
| configs   | Yes       | Array of <b>CreateRemoveHeaderConfig</b> objects | Specifies the headers you want to remove from the request that matches the condition. |



**Table 4-380** 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 4-381** 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.<br><br>Minimum: <b>1</b><br>Maximum: <b>16</b> |

| Parameter    | Mandatory | Type   | Description  |
|--------------|-----------|--------|--|
| content_type | No        | String | Specifies the format of the response body.<br>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> .<br>Minimum: <b>0</b><br>Maximum: <b>32</b> |
| message_body | No        | String | Specifies the content of the response message body.<br>Minimum: <b>0</b><br>Maximum: <b>1024</b>   |

**Table 4-382** CreateRedirectPoolsExtendConfig

| Parameter          | Mandatory | Type  | Description   |
|--------------------|-----------|---|---|
| rewrite_url_enable | No        | Boolean                                       | Specifies whether to set <b>rewrite_url_enable</b> to <b>true</b> .   |
| 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>rewrite_url_enable</b> is set to <b>true</b> . |

**Table 4-383** 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 | 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 (/). <i>\$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>.</i>       |
| query     | No        | String | 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. The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'() +,-./:;=?@^_`</code> . <i>\$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>.</i> |

**Table 4-384** CreateL7PolicyRuleOption

| Parameter      | Mandatory | Type    | Description  |
|----------------|-----------|---------|--|
| admin_state_up | No        | Boolean | <p>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>.</p> <p>This parameter is unsupported. Please do not use it.</p> <p>Default: <b>true</b></p>   |
| 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></ul> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, and <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> and <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><br/>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><br/>Maximum: <b>128</b></p> |

| Parameter  | Mandatory | Type   | Description   |
|------------|-----------|--|---|
| conditions | No        | Array of <a href="#">CreateRuleCondition</a> objects | <p>Specifies the conditions contained in a forwarding rule. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>true</b>.</p> <p>If <b>conditions</b> is specified, <b>key</b> and <b>value</b> will not take effect, and the value of this parameter 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 4-385** 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, PATH, METHOD, or 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><br/>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</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><br/>Maximum: <b>128</b></p> |

## Response Parameters

Status code: 201

**Table 4-386** 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 4-387** L7Policy

| Parameter      | Type    | Description   |
|----------------|---------|---|
| action         | String  | Specifies where requests will be forwarded. The value can be one of the following: <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></ul> <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.<br>Note: <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 | Specifies the administrative status of the forwarding policy. The default value is <b>true</b> .<br>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.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |

| Parameter | Type    | Description   |
|-----------|---------|---|
| position  | Integer | Specifies the forwarding policy priority. This parameter cannot be updated.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>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 forwarding policies of the same listener. This parameter will take effect only 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. This parameter is unsupported for shared load balancers.</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 <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is not enabled, forwarding policies are automatically prioritized based on the original policy sorting logic. The priorities of domain names are independent from each other. For the same domain name, the priorities are sorted in the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If the matching types are the same, the longer the URL is, the higher the priority is. 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 be a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to be created because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, specify a value or adjust the priorities of existing forwarding policies. If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li></ul> |
| project_id | String  | Specifies the project ID of the forwarding policy.  |

| Parameter            | Type                                     | Description  |
|----------------------|--|--|
| provisioning_status  | String                                   | <p>Specifies the provisioning status of the forwarding policy.</p> <p>The value can be <b>ACTIVE</b> or <b>ERROR</b>.</p> <ul style="list-style-type: none"> <li><b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li> </ul>  |
| redirect_pool_id     | 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>.</li> <li>Either <b>redirect_pools_config</b> or <b>redirect_pool_id</b> needs to be specified. If both <b>redirect_pools_config</b> and <b>redirect_pool_id</b> are specified, <b>redirect_pools_config</b> will take effect.</li> <li>If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, this parameter is unavailable.</li> </ul> |
| redirect_listener_id | 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 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                                   | <p>Specifies the URL to which requests are forwarded.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>This parameter is unsupported. Please do not use it.</p>  |
| rules                | Array of <a href="#">RuleRef</a> 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.)</p> <p>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.</p> |
| redirect_pools_extend_config | <a href="#">RedirectPoolsExtendConfig</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>   |
| fixed_response_config        | <a href="#">FixedResponseConfig</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>   |
| 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>   |
| 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>   |

**Table 4-388** RuleRef

| Parameter | Type   | Description                       |
|-----------|--------|-----------------------------------|
| id        | String | Specifies the forwarding rule ID. |

**Table 4-389** RedirectUrlConfig

| Parameter | Type   | Description  |
|-----------|--------|--|
| protocol  | String | Specifies the protocol for redirection.<br>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.<br>Minimum: <b>1</b><br>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.<br>Default: <b>\${host}</b><br>Minimum: <b>1</b><br>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.<br>Default: <b>\${port}</b><br>Minimum: <b>1</b><br>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 (/).<br>Default: <b>\${path}</b><br>Minimum: <b>1</b><br>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>  |

**Table 4-390** RedirectPoolsExtendConfig

| Parameter          | Type                           | Description   |
|--------------------|--------------------------------|---|
| rewrite_url_enable | Boolean                        | Specifies whether to enable URL redirection.  |
| rewrite_url_config | <b>RewriteUrlConfig</b> object | Specifies the URL for the backend server group that requests are forwarded to. This parameter is valid when <b>rewrite_url_enable</b> is set to <b>true</b> . |

**Table 4-391** RewriteUrlConfig

| Parameter | Type   | Description  |
|-----------|--------|--|
| host      | 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.<br><br>The default value is <b>`\${host}</b> , indicating that the host of the request will be used. |
| path      | String | Specifies the URL path.  |
| query     | String | Specifies the URL query character string.  |

**Table 4-392** 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.<br><br>Minimum: <b>1</b><br>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> .<br><br>Minimum: <b>0</b><br>Maximum: <b>32</b> |
| message_body | String | Specifies the content of the response message body.<br><br>Minimum: <b>0</b><br>Maximum: <b>1024</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](#).

## 4.14.2 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 4-393** Path Parameters

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

**Table 4-394** Query Parameters

| Parameter | Mandatory | Type    | Description   |
|-----------|-----------|---------|---|
| marker    | No        | String  | Specifies the ID of the last record on the previous page.<br>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.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>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.<br>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> .<br>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.<br>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.<br>Multiple priorities can be queried in the format of <i>position=xxx&amp;position=xxx</i> .<br>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   | <p>Specifies the provisioning status of the forwarding policy.</p> <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> <p>Multiple provisioning statuses can be queried in the format of <i>provisioning_status=xxx&amp;provisioning_status=xxx</i>.</p> |
| display_all_rules   | No        | Boolean | <p>Specifies whether to display details about the forwarding rule in the forwarding policy.</p> <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   | <p>Specifies the forwarding policy priority. A smaller value indicates a higher priority.</p> <p>Multiple priorities can be queried in the format of <i>position=xxx&amp;position=xxx</i>.</p>   |

## Request Parameters

**Table 4-395** 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 4-396** Response body parameters

| Parameter  | Type                             | Description   |
|------------|----------------------------------|---|
| request_id | String                           | Specifies the request ID. The value is automatically generated. |
| page_info  | <b>PageInfo</b> object           | Shows pagination information.                                   |
| l7policies | Array of <b>L7Policy</b> objects | Lists the forwarding policies.                                  |

**Table 4-397** 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 4-398** 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></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> .<br>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.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |
| position       | Integer | Specifies the forwarding policy priority. This parameter cannot be updated.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>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 forwarding policies of the same listener. This parameter will take effect only 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. This parameter is unsupported for shared load balancers.</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 <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is not enabled, forwarding policies are automatically prioritized based on the original policy sorting logic. The priorities of domain names are independent from each other. For the same domain name, the priorities are sorted in the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If the matching types are the same, the longer the URL is, the higher the priority is. 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 be a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to be created because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, specify a value or adjust the priorities of existing forwarding policies. If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li></ul> |
| project_id | String  | Specifies the project ID of the forwarding policy.  |

| Parameter            | Type                                     | Description  |
|----------------------|--|--|
| provisioning_status  | String                                   | <p>Specifies the provisioning status of the forwarding policy.</p> <p>The value can be <b>ACTIVE</b> or <b>ERROR</b>.</p> <ul style="list-style-type: none"> <li><b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li> </ul>  |
| redirect_pool_id     | 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>.</li> <li>Either <b>redirect_pools_config</b> or <b>redirect_pool_id</b> needs to be specified. If both <b>redirect_pools_config</b> and <b>redirect_pool_id</b> are specified, <b>redirect_pools_config</b> will take effect.</li> <li>If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, this parameter is unavailable.</li> </ul> |
| redirect_listener_id | 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 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                                   | <p>Specifies the URL to which requests are forwarded.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>This parameter is unsupported. Please do not use it.</p>  |
| rules                | Array of <a href="#">RuleRef</a> 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.)</p> <p>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.</p> |
| redirect_pools_extend_config | <a href="#">RedirectPoolsExtendConfig</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>   |
| fixed_response_config        | <a href="#">FixedResponseConfig</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>   |
| 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>   |
| 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>   |

**Table 4-399** RuleRef

| Parameter | Type   | Description                       |
|-----------|--------|-----------------------------------|
| id        | String | Specifies the forwarding rule ID. |

**Table 4-400** RedirectUrlConfig

| Parameter | Type   | Description  |
|-----------|--------|--|
| protocol  | String | Specifies the protocol for redirection.<br>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.<br>Minimum: <b>1</b><br>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.<br>Default: <b>\${host}</b><br>Minimum: <b>1</b><br>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.<br>Default: <b>\${port}</b><br>Minimum: <b>1</b><br>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 (/).<br>Default: <b>\${path}</b><br>Minimum: <b>1</b><br>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>  |

**Table 4-401** RedirectPoolsExtendConfig

| Parameter          | Type                                    | Description   |
|--------------------|---|---|
| rewrite_url_enable | Boolean                                 | Specifies whether to enable URL redirection.  |
| rewrite_url_config | <a href="#">RewriteUrlConfig</a> object | Specifies the URL for the backend server group that requests are forwarded to. This parameter is valid when <b>rewrite_url_enable</b> is set to <b>true</b> . |

**Table 4-402** RewriteUrlConfig

| Parameter | Type   | Description  |
|-----------|--------|--|
| host      | 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.<br>The default value is <b>`\${host}</b> , indicating that the host of the request will be used. |
| path      | String | Specifies the URL path.  |
| query     | String | Specifies the URL query character string.  |

**Table 4-403** 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.<br>Minimum: <b>1</b><br>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> .<br>Minimum: <b>0</b><br>Maximum: <b>32</b> |
| message_body | String | Specifies the content of the response message body.<br>Minimum: <b>0</b><br>Maximum: <b>1024</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](#).

## 4.14.3 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 4-404** 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 4-405** 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 4-406** 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 4-407** L7Policy

| Parameter      | Type    | Description   |
|----------------|---------|---|
| action         | String  | Specifies where requests will be forwarded. The value can be one of the following: <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></ul> <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.<br>Note: <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 | Specifies the administrative status of the forwarding policy. The default value is <b>true</b> .<br>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.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |

| Parameter | Type    | Description   |
|-----------|---------|---|
| position  | Integer | Specifies the forwarding policy priority. This parameter cannot be updated.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>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 forwarding policies of the same listener. This parameter will take effect only 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. This parameter is unsupported for shared load balancers.</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 <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is not enabled, forwarding policies are automatically prioritized based on the original policy sorting logic. The priorities of domain names are independent from each other. For the same domain name, the priorities are sorted in the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If the matching types are the same, the longer the URL is, the higher the priority is. 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 be a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to be created because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, specify a value or adjust the priorities of existing forwarding policies. If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li></ul> |
| project_id | String  | Specifies the project ID of the forwarding policy.  |

| Parameter            | Type                                     | Description  |
|----------------------|--|--|
| provisioning_status  | String                                   | <p>Specifies the provisioning status of the forwarding policy.</p> <p>The value can be <b>ACTIVE</b> or <b>ERROR</b>.</p> <ul style="list-style-type: none"> <li><b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li> </ul>  |
| redirect_pool_id     | 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>.</li> <li>Either <b>redirect_pools_config</b> or <b>redirect_pool_id</b> needs to be specified. If both <b>redirect_pools_config</b> and <b>redirect_pool_id</b> are specified, <b>redirect_pools_config</b> will take effect.</li> <li>If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, this parameter is unavailable.</li> </ul> |
| redirect_listener_id | 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 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                                   | <p>Specifies the URL to which requests are forwarded.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>This parameter is unsupported. Please do not use it.</p>  |
| rules                | Array of <a href="#">RuleRef</a> 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.)</p> <p>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.</p> |
| redirect_pools_extend_config | <a href="#">RedirectPoolsExtendConfig</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>   |
| fixed_response_config        | <a href="#">FixedResponseConfig</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>   |
| 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>   |
| 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>   |

**Table 4-408** RuleRef

| Parameter | Type   | Description                       |
|-----------|--------|-----------------------------------|
| id        | String | Specifies the forwarding rule ID. |

**Table 4-409** RedirectUrlConfig

| Parameter | Type   | Description  |
|-----------|--------|--|
| protocol  | String | Specifies the protocol for redirection.<br>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.<br>Minimum: <b>1</b><br>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.<br>Default: <b>\${host}</b><br>Minimum: <b>1</b><br>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.<br>Default: <b>\${port}</b><br>Minimum: <b>1</b><br>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 (/).<br>Default: <b>\${path}</b><br>Minimum: <b>1</b><br>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 !<br/>\$&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>   |

**Table 4-410** RedirectPoolsExtendConfig

| Parameter          | Type                                    | Description   |
|--------------------|---|---|
| rewrite_url_enable | Boolean                                 | Specifies whether to enable URL redirection.  |
| rewrite_url_config | <a href="#">RewriteUrlConfig</a> object | Specifies the URL for the backend server group that requests are forwarded to. This parameter is valid when <b>rewrite_url_enable</b> is set to <b>true</b> . |

**Table 4-411** RewriteUrlConfig

| Parameter | Type   | Description   |
|-----------|--------|---|
| host      | 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.<br><br>The default value is <b>`\${host}`</b> , indicating that the host of the request will be used. |
| path      | String | Specifies the URL path.   |
| query     | String | Specifies the URL query character string.   |

**Table 4-412** 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.<br><br>Minimum: <b>1</b><br>Maximum: <b>16</b>                                       |
| content_type | String | Specifies the format of the response body.<br>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> .<br><br>Minimum: <b>0</b><br>Maximum: <b>32</b> |
| message_body | String | Specifies the content of the response message body.<br><br>Minimum: <b>0</b><br>Maximum: <b>1024</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](#).

### 4.14.4 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 4-413** 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 4-414** Request header parameters

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

**Table 4-415** Request body parameters

| Parameter | Mandatory | Type  | Description                      |
|-----------|-----------|---|----------------------------------|
| l7policy  | Yes       | <a href="#">UpdateL7PolicyOption</a> object | Specifies the forwarding policy. |

**Table 4-416** 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> .<br>This parameter is unsupported. Please do not use it. |
| description    | No        | String  | Provides supplementary information about the forwarding policy.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |

| Parameter            | Mandatory | Type   | Description   |
|----------------------|-----------|--------|---|
| name                 | No        | String | Specifies the forwarding policy name.<br>Minimum: <b>0</b><br>Maximum: <b>255</b>   |
| redirect_listener_id | No        | String | Specifies the ID of the listener to which requests are redirected.<br>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>                          |
| redirect_pool_id     | No        | String | Specifies the ID of the backend server group that requests will be forwarded to. <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> |

| Parameter                            | Mandatory | Type  | Description  |
|--------------------------------------|-----------|---|--|
| redirect_pools_config                | No        | Array of <a href="#">UpdateRedirectPoolsConfig</a> objects    | <p>Specifies the configuration of 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> <p>Note:</p> <ul style="list-style-type: none"> <li>If <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, specify either <b>redirect_pool_id</b> or <b>redirect_pools_config</b>. If both are specified, only <b>redirect_pools_config</b> takes effect.</li> <li>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>. All configuration will be overwritten.</li> </ul> |
| 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>   |

| 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.)</p> <p>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.</p> |

| Parameter                    | Mandatory | Type   | Description   |
|------------------------------|-----------|--|---|
| fixed_response_config        | No        | <a href="#">UpdateFixedResponseConfig</a> object       | 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.<br><br>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> . |
| redirect_pools_extend_config | No        | <a href="#">UpdateRedirectPoolsExtendConfig</a> object | Specifies the backend server group that the requests are forwarded to.  |
| rules                        | No        | Array of <a href="#">CreateRuleOption</a> objects      | Lists the forwarding rules in the forwarding policy.<br><br>The list can contain a maximum of 10 forwarding rules (if <b>conditions</b> is specified, a condition is considered as a rule).<br><br>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.<br><br>For details, see the description of <b>l7rule</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 forwarding policies of the same listener. This parameter will take effect only 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. This parameter is unsupported for shared load balancers.</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 <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is not enabled, forwarding policies are automatically prioritized based on the original policy sorting logic. The priorities of domain names are independent from each other. For the same domain name, the priorities are sorted in the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If the matching types are the same, the longer the URL is, the higher the priority is. 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,</li></ul> |

| Parameter | Mandatory | Type | Description  |
|-----------|-----------|------|--|
|           |           |      | <p>the priority will be a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to be created because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, specify a value or adjust the priorities of existing forwarding policies. If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</p> <p>Minimum: <b>0</b><br/>Maximum: <b>10000</b></p> |

**Table 4-417** UpdateRedirectPoolsConfig

| Parameter | Mandatory | Type   | Description  |
|-----------|-----------|--------|--|
| pool_id   | Yes       | String | Specifies the ID of the backend server group.  |
| weight    | No        | String | <p>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.</p> <p>Default: <b>1</b></p> |

**Table 4-418** 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.<br>The value ranges from <b>1</b> to <b>1440</b> (default), in minutes.   |

**Table 4-419** UpdateRedirectUrlConfig

| Parameter | Mandatory | Type   | Description   |
|-----------|-----------|--------|---|
| protocol  | No        | String | Specifies the protocol for redirection.<br>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.<br>Minimum: <b>1</b><br>Maximum: <b>36</b>   |
| host      | No        | 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.<br>Default: <b>`\${host}`</b><br>Minimum: <b>1</b><br>Maximum: <b>128</b> |

| 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><br/>Minimum: <b>1</b><br/>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><br/>Minimum: <b>1</b><br/>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>The value is case-sensitive and can contain only letters, digits, and special characters <code>!\$&amp;'()*+,-./:;=?@^_`</code></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>Default: <b>#{query}</b><br/>Minimum: <b>0</b><br/>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><br/>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 4-420** 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.<br>Minimum: <b>1</b><br>Maximum: <b>16</b>   |
| content_type          | No        | String   | Specifies the format of the response body.<br>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> .<br>Minimum: <b>1</b><br>Maximum: <b>64</b> |
| message_body          | No        | String   | Specifies the content of the response message body.<br>Minimum: <b>0</b><br>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 4-421** 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 4-422** 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.<br>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 4-423** 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 4-424** 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> .<br><br>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 4-425** 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 4-426** 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 4-427** 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.<br>Minimum: <b>0</b><br>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> .<br>Minimum: <b>0</b><br>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.<br>Minimum: <b>0</b><br>Maximum: <b>100000</b>  |

**Table 4-428** 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> .<br>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><br/>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.</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 (*) <i>and must start with a letter or digit.</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> 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><br/>Maximum: <b>128</b></p> |
| project_id | No        | String | <p>Specifies the project ID.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>32</b></p>  |

| Parameter  | Mandatory | Type   | Description  |
|------------|-----------|--|--|
| type       | Yes       | String   | <p>Specifies the match content. 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. 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.</li></ul> |
| 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>  |
| 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 4-429** 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, PATH, METHOD, or 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><br/>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</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><br/>Maximum: <b>128</b></p> |

## Response Parameters

Status code: 200

**Table 4-430** 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 4-431** L7Policy

| Parameter      | Type    | Description   |
|----------------|---------|---|
| action         | String  | Specifies where requests will be forwarded. The value can be one of the following: <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></ul> <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.<br>Note: <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 | Specifies the administrative status of the forwarding policy. The default value is <b>true</b> .<br>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.<br>Minimum: <b>1</b><br>Maximum: <b>255</b>   |

| Parameter | Type    | Description   |
|-----------|---------|---|
| position  | Integer | Specifies the forwarding policy priority. This parameter cannot be updated.<br>This parameter is unsupported. Please do not use it.<br>Minimum: <b>1</b><br>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 forwarding policies of the same listener. This parameter will take effect only 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. This parameter is unsupported for shared load balancers.</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 <b>REDIRECT_TO_LISTENER</b> has the highest priority.</li><li>• If <b>enhance_l7policy_enable</b> is not enabled, forwarding policies are automatically prioritized based on the original policy sorting logic. The priorities of domain names are independent from each other. For the same domain name, the priorities are sorted in the order of exact match (<b>EQUAL_TO</b>), prefix match (<b>STARTS_WITH</b>), and regular expression match (<b>REGEX</b>). If the matching types are the same, the longer the URL is, the higher the priority is. 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 be a sum of 1 and the highest priority of existing forwarding policy in the same listener by default. If the highest priority of existing forwarding policies is the maximum (10,000), the forwarding policy will fail to be created because the final priority for creating the forwarding policy is the sum of 1 and 10,000, which exceeds the maximum. In this case, specify a value or adjust the priorities of existing forwarding policies. If no forwarding policies exist, the highest priority of existing forwarding policies will be set to 1 by default.</li></ul> |
| project_id | String  | Specifies the project ID of the forwarding policy.  |

| Parameter            | Type                            | Description  |
|----------------------|---------------------------------|--|
| provisioning_status  | String                          | <p>Specifies the provisioning status of the forwarding policy.</p> <p>The value can be <b>ACTIVE</b> or <b>ERROR</b>.</p> <ul style="list-style-type: none"> <li><b>ACTIVE</b> (default): The forwarding policy is provisioned successfully.</li> </ul>  |
| redirect_pool_id     | 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>.</li> <li>Either <b>redirect_pools_config</b> or <b>redirect_pool_id</b> needs to be specified. If both <b>redirect_pools_config</b> and <b>redirect_pool_id</b> are specified, <b>redirect_pools_config</b> will take effect.</li> <li>If <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, this parameter is unavailable.</li> </ul> |
| redirect_listener_id | 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 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                          | <p>Specifies the URL to which requests are forwarded.</p> <p>Format: <i>protocol://host:port/path?query</i></p> <p>This parameter is unsupported. Please do not use it.</p>  |
| 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.)</p> <p>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.</p> |
| redirect_pools_extend_config | <a href="#">RedirectPoolsExtendConfig</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>   |
| fixed_response_config        | <a href="#">FixedResponseConfig</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>   |
| 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>   |
| 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>   |

**Table 4-432** RuleRef

| Parameter | Type   | Description                       |
|-----------|--------|-----------------------------------|
| id        | String | Specifies the forwarding rule ID. |

**Table 4-433** RedirectUrlConfig

| Parameter | Type   | Description   |
|-----------|--------|---|
| protocol  | String | Specifies the protocol for redirection.<br>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.<br>Minimum: <b>1</b><br>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.<br>Default: <b>`\${host}`</b><br>Minimum: <b>1</b><br>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.<br>Default: <b>`\${port}`</b><br>Minimum: <b>1</b><br>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 (/).<br>Default: <b>`\${path}`</b><br>Minimum: <b>1</b><br>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 !<br/>`\${&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>  |

**Table 4-434** RedirectPoolsExtendConfig

| Parameter          | Type                                    | Description   |
|--------------------|---|---|
| rewrite_url_enable | Boolean                                 | Specifies whether to enable URL redirection.  |
| rewrite_url_config | <a href="#">RewriteUrlConfig</a> object | Specifies the URL for the backend server group that requests are forwarded to. This parameter is valid when <b>rewrite_url_enable</b> is set to <b>true</b> . |

**Table 4-435** RewriteUrlConfig

| Parameter | Type   | Description  |
|-----------|--------|--|
| host      | 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.<br>The default value is <b>`\${host}</b> , indicating that the host of the request will be used. |
| path      | String | Specifies the URL path.  |
| query     | String | Specifies the URL query character string.  |

**Table 4-436** 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.<br>Minimum: <b>1</b><br>Maximum: <b>16</b>                                       |
| content_type | String | Specifies the format of the response body.<br>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> .<br>Minimum: <b>0</b><br>Maximum: <b>32</b> |
| message_body | String | Specifies the content of the response message body.<br>Minimum: <b>0</b><br>Maximum: <b>1024</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](#).

## 4.14.5 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 4-437** 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 4-438** 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](#).

## 4.15 Forwarding Rule

### 4.15.1 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 4-439** 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 4-440** Request header parameters

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

**Table 4-441** Request body parameters

| Parameter | Mandatory | Type                                    | Description                    |
|-----------|-----------|---|--------------------------------|
| rule      | Yes       | <a href="#">CreateRuleOption</a> object | Specifies the forwarding rule. |

**Table 4-442** 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> .<br><br>This parameter is unsupported. Please do not use it.  |
| compare_type   | Yes       | String  | Specifies how requests are matched with the forwarding rule. 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> Note: <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  | Specifies the key of match content. For example, if the request header is used for forwarding, <b>key</b> is the request header.<br><br>This parameter is unsupported. Please do not use it.<br><br>Minimum: <b>0</b><br>Maximum: <b>255</b>  |

| 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.</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 (*) <i>and must start with a letter or digit.</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> 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><br/>Maximum: <b>128</b></p> |
| project_id | No        | String | <p>Specifies the project ID.</p> <p>Minimum: <b>1</b><br/>Maximum: <b>32</b></p>  |

| Parameter  | Mandatory | Type   | Description  |
|------------|-----------|--|--|
| type       | Yes       | String   | <p>Specifies the match content. 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. 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.</li></ul> |
| 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>  |
| 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 4-443** 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, PATH, METHOD, or 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><br/>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><br/>Maximum: <b>128</b></p> |

## Response Parameters

Status code: 201

**Table 4-444** 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 4-445** L7Rule

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule. The default value is <b>true</b> .<br>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.<br>Minimum: <b>1</b><br>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> </ul> <p>Note:<br/>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, and <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> and <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<br/>Maximum: 128</p> |

| Parameter           | Type                                  | Description   |
|---------------------|---------------------------------------|---|
| provisioning_status | String                                | Specifies the provisioning status of the forwarding rule.<br>The value can only be <b>ACTIVE</b> (default), <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>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 will take effect when <b>enhance_l7policy_enable</b> is set to <b>.true</b> . If <b>conditions</b> is specified, <b>key</b> and <b>value</b> will not take effect, and the value of this parameter 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).   |
| 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).   |

**Table 4-446** 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.]<br>All values of the condition list in a forwarding rule must be unique.<br>Minimum: <b>1</b><br>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](#).

## 4.15.2 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 4-447** Path Parameters

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| project_id  | Yes       | String | Specifies the project ID.           |
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |

**Table 4-448** Query Parameters

| Parameter | Mandatory | Type    | Description  |
|-----------|-----------|---------|--|
| limit     | No        | Integer | Specifies the number of records on each page.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>Default: <b>2000</b> |

| Parameter    | Mandatory | Type    | Description   |
|--------------|-----------|---------|---|
| marker       | No        | String  | Specifies the ID of the last record on the previous page.<br>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.<br>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 4-449** 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 4-450** Response body parameters

| Parameter  | Type                   | Description   |
|------------|------------------------|---|
| request_id | String                 | Specifies the request ID. The value is automatically generated. |
| page_info  | <b>PageInfo</b> object | Shows pagination information.                                   |

| Parameter | Type                                    | Description                 |
|-----------|---|-----------------------------|
| rules     | Array of <a href="#">L7Rule</a> objects | Lists the forwarding rules. |

**Table 4-451** 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 4-452** L7Rule

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule. The default value is <b>true</b> .<br>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.<br>Minimum: <b>1</b><br>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> </ul> <p>Note:<br/>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, and <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> and <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<br/>Maximum: 128</p> |

| Parameter           | Type                                  | Description   |
|---------------------|---------------------------------------|---|
| provisioning_status | String                                | Specifies the provisioning status of the forwarding rule.<br>The value can only be <b>ACTIVE</b> (default), <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>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 will take effect when <b>enhance_l7policy_enable</b> is set to <b>.true</b> . If <b>conditions</b> is specified, <b>key</b> and <b>value</b> will not take effect, and the value of this parameter 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).   |
| 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).   |



**Table 4-453** 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.]<br>All values of the condition list in a forwarding rule must be unique.<br>Minimum: <b>1</b><br>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](#).

## 4.15.3 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 4-454** 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 4-455** 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 4-456** 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 4-457 L7Rule

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule. The default value is <b>true</b> .<br>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.<br>Minimum: <b>1</b><br>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></ul> Note:<br>If <b>type</b> is set to <b>HOST_NAME</b> , <b>PATH</b> , <b>METHOD</b> , and <b>SOURCE_IP</b> , only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> and <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><br/>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 will take effect when <b>enhance_l7policy_enable</b> is set to <b>.true</b>. If <b>conditions</b> is specified, <b>key</b> and <b>value</b> will not take effect, and the value of this parameter 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 | Specifies the time when the forwarding rule was added. The format is yyyy-MM-dd'T'HH:mm:ss'Z' (UTC time).   |
| 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). |

**Table 4-458** 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.]<br>All values of the condition list in a forwarding rule must be unique.<br>Minimum: <b>1</b><br>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](#).

## 4.15.4 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 4-459** 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 4-460** Request header parameters

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

**Table 4-461** Request body parameters

| Parameter | Mandatory | Type                                      | Description                    |
|-----------|-----------|---|--------------------------------|
| rule      | Yes       | <a href="#">UpdateL7RuleOption</a> object | Specifies the forwarding rule. |

**Table 4-462** 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> .<br>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><br/>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><br/>Maximum: <b>128</b></p> |

| Parameter  | Mandatory | Type  | Description   |
|------------|-----------|---|---|
| conditions | No        | Array of <b>UpdateRuleCondition</b> objects | Specifies the matching conditions of the forwarding rule. This parameter will take effect when <b>enhance_l7policy_enable</b> is set to <b>.true</b> . If <b>conditions</b> is specified, <b>key</b> and <b>value</b> will not take effect, and the value of this parameter will contain all conditions configured for the forwarding rule. The keys in the list must be the same, whereas each value must be unique. |

**Table 4-463** 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><br/>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 (*), 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><br/>Maximum: <b>128</b></p> |

## Response Parameters

Status code: 200



**Table 4-464** 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 4-465** L7Rule

| Parameter      | Type    | Description  |
|----------------|---------|--|
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule. The default value is <b>true</b> .<br>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.<br>Minimum: <b>1</b><br>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></ul> <p>Note:</p> <p>If <b>type</b> is set to <b>HOST_NAME</b>, <b>PATH</b>, <b>METHOD</b>, and <b>SOURCE_IP</b>, only one forwarding rule can be created for each type. If <b>type</b> is set to <b>HEADER</b> and <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<br/>Maximum: 128</p> |

| Parameter           | Type                                  | Description   |
|---------------------|---------------------------------------|---|
| provisioning_status | String                                | Specifies the provisioning status of the forwarding rule.<br>The value can only be <b>ACTIVE</b> (default), <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>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 will take effect when <b>enhance_l7policy_enable</b> is set to <b>.true</b> . If <b>conditions</b> is specified, <b>key</b> and <b>value</b> will not take effect, and the value of this parameter 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).   |
| 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).   |

**Table 4-466** 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.]<br>All values of the condition list in a forwarding rule must be unique.<br>Minimum: <b>1</b><br>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](#).

## 4.15.5 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 4-467** 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 4-468** 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](#).

# 4.16 Log

## 4.16.1 Creating a Log

### Function

This API is used to create a log.

### Calling Method

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

### URI

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

**Table 4-469** Path Parameters

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

### Request Parameters

**Table 4-470** Request header parameters

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



**Table 4-471** Request body parameters

| Parameter | Mandatory | Type                       | Description   |
|-----------|-----------|----------------------------|---|
| logtank   | Yes       | CreateLogtankOption object | Specifies the request parameter for creating a log. |

**Table 4-472** CreateLogtankOption

| Parameter       | Mandatory | Type   | Description   |
|-----------------|-----------|--------|---|
| loadbalancer_id | Yes       | String | Specifies the load balancer ID.<br>Minimum: 1<br>Maximum: 36  |
| log_group_id    | Yes       | String | Specifies the log group ID. This parameter is available for all services other than ELB.<br>Minimum: 1<br>Maximum: 36                     |
| log_topic_id    | Yes       | String | Specifies the ID of the log subscription topic. This parameter is available for all services other than ELB.<br>Minimum: 1<br>Maximum: 36 |

## Response Parameters

Status code: 201

**Table 4-473** Response body parameters

| Parameter  | Type           | Description   |
|------------|----------------|---|
| logtank    | Logtank object | Provides supplementary information.                             |
| request_id | String         | Specifies the request ID. The value is automatically generated. |

**Table 4-474** Logtank

| Parameter       | Type   | Description                          |
|-----------------|--------|--------------------------------------|
| id              | String | Specifies the log ID.                |
| project_id      | String | Specifies the ID of a load balancer. |
| loadbalancer_id | String | Specifies the ID of a load balancer. |
| log_group_id    | String | Specifies the log group ID.          |
| log_topic_id    | String | Specifies the log topic ID.          |

## Example Requests

Creating a log for a load balancer

```
POST https://{ELB_Endpoint}/v3/060576798a80d5762fafc01a9b5eedc7/elb/logtanks
{
  "logtank": {
    "log_topic_id": "5b9b8370-a1fc-4c59-a509-483a673c8a94",
    "log_group_id": "7733882e-f7fa-4fb0-a460-0605c48a2280",
    "loadbalancer_id": "47ecc304-3f1a-4cc6-9c1c-72add483b9ce"
  }
}
```

## Example Responses

**Status code: 201**

Created

```
{
  "request_id": "c5aea69b657295bef71cd05da2959206",
  "logtank": {
    "project_id": "060576798a80d5762fafc01a9b5eedc7",
    "log_topic_id": "5b9b8370-a1fc-4c59-a509-483a673c8a94",
    "id": "603e507f-3e18-498b-9460-01a3b6c28fc5",
    "log_group_id": "7733882e-f7fa-4fb0-a460-0605c48a2280",
    "loadbalancer_id": "47ecc304-3f1a-4cc6-9c1c-72add483b9ce"
  }
}
```

## Status Codes

| Status Code | Description |
|-------------|-------------|
| 201         | Created     |

## Error Codes

See [Error Codes](#).

## 4.16.2 Querying Logs

### Function

This API is used to query logs.

### 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/logtanks

**Table 4-475** Path Parameters

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

**Table 4-476** Query Parameters

| Parameter | Mandatory | Type    | Description   |
|-----------|-----------|---------|---|
| limit     | No        | Integer | Specifies the number of records on each page.<br>Minimum: <b>0</b><br>Maximum: <b>2000</b><br>Default: <b>2000</b>  |
| marker    | No        | String  | Specifies the ID of the last record on the previous page.<br>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> |
| enterprise_project_id | No        | Array   | Specifies the enterprise project ID.<br>Multiple IDs can be queried in the format of <i>enterprise_project_id=xxx&amp;enterprise_project_id=xxx</i> .   |
| id                    | No        | Array   | Specifies the ID of the log tank.<br>Multiple IDs can be queried in the format of <i>id=xxx&amp;id=xxx</i> .  |
| loadbalancer_id       | No        | Array   | Specifies the ID of a load balancer.<br>Multiple IDs can be queried in the format of <i>loadbalancer_id=xxx&amp;loadbalancer_id=xxx</i> .   |
| log_group_id          | No        | Array   | Specifies the log group ID.<br>Multiple IDs can be queried in the format of <i>log_group_id=xxx&amp;log_group_id=xxx</i> .  |
| log_topic_id          | No        | Array   | Specifies the log topic ID.<br>Multiple IDs can be queried in the format of <i>log_topic_id=xxx&amp;log_topic_id=xxx</i> .  |

## Request Parameters

**Table 4-477** 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 4-478** Response body parameters

| Parameter  | Type                                     | Description   |
|------------|--|---|
| logtanks   | Array of <a href="#">Logtank</a> objects | Provides supplementary information.                             |
| page_info  | <a href="#">PageInfo</a> object          | Specifies pagination information about the load balancer.       |
| request_id | String                                   | Specifies the request ID. The value is automatically generated. |

**Table 4-479** Logtank

| Parameter       | Type   | Description                          |
|-----------------|--------|--------------------------------------|
| id              | String | Specifies the log ID.                |
| project_id      | String | Specifies the ID of a load balancer. |
| loadbalancer_id | String | Specifies the ID of a load balancer. |
| log_group_id    | String | Specifies the log group ID.          |
| log_topic_id    | String | Specifies the log topic ID.          |

**Table 4-480** PageInfo

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

| Parameter     | Type    | Description   |
|---------------|---------|---|
| 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 logs of multiple load balancers

```
GET https://{ELB_Endpoint}/v3/060576798a80d5762fafc01a9b5eedc7/elb/logtanks?loadbalancer_id=995b98d7-6010-4502-a91a-756f399088f8&loadbalancer_id=37e9c3e3-08a2-48e9-acee-431159a33cc2
```

## Example Responses

Status code: 200

OK

```
{
  "request_id": "5b43d31cd5217ffca57c2c4177e1b1ee",
  "logtanks": [ {
    "project_id": "060576798a80d5762fafc01a9b5eedc7",
    "log_topic_id": "5b9b8370-a1fc-4c59-a509-483a673c8a94",
    "id": "281e8768-94f9-45e9-9f3d-9fe2a122ad67",
    "log_group_id": "7733882e-f7fa-4fb0-a460-0605c48a2280",
    "loadbalancer_id": "995b98d7-6010-4502-a91a-756f399088f8"
  } ],
  "page_info": {
    "next_marker": "281e8768-94f9-45e9-9f3d-9fe2a122ad67",
    "previous_marker": "281e8768-94f9-45e9-9f3d-9fe2a122ad67",
    "current_count": 1
  }
}
```

## Status Codes

| Status Code | Description |
|-------------|-------------|
| 200         | OK          |

## Error Codes

See [Error Codes](#).

### 4.16.3 Viewing Details of a Log

#### Function

This API is used to view details of a log.

## Calling Method

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

## URI

GET /v3/{project\_id}/elb/logtanks/{logtank\_id}

**Table 4-481** Path Parameters

| Parameter  | Mandatory | Type   | Description               |
|------------|-----------|--------|---------------------------|
| project_id | Yes       | String | Specifies the project ID. |
| logtank_id | Yes       | String | Specifies the log ID.     |

## Request Parameters

**Table 4-482** 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 4-483** Response body parameters

| Parameter  | Type                     | Description   |
|------------|--------------------------|---|
| request_id | String                   | Specifies the request ID. The value is automatically generated. |
| logtank    | <b>Logtank</b><br>object | Provides supplementary information.                             |

**Table 4-484** Logtank

| Parameter       | Type   | Description                          |
|-----------------|--------|--------------------------------------|
| id              | String | Specifies the log ID.                |
| project_id      | String | Specifies the ID of a load balancer. |
| loadbalancer_id | String | Specifies the ID of a load balancer. |

| Parameter    | Type   | Description                 |
|--------------|--------|-----------------------------|
| log_group_id | String | Specifies the log group ID. |
| log_topic_id | String | Specifies the log topic ID. |

## Example Requests

Viewing details of a log

```
GET https://{ELB_Endpoint}/v3/060576798a80d5762fafc01a9b5eedc7/elb/logtanks/  
603e507f-3e18-498b-9460-01a3b6c28fc5
```

## Example Responses

Status code: 200

OK

```
{  
  "logtank" : {  
    "project_id" : "060576798a80d5762fafc01a9b5eedc7",  
    "log_topic_id" : "5b9b8370-a1fc-4c59-a509-483a673c8a94",  
    "id" : "603e507f-3e18-498b-9460-01a3b6c28fc5",  
    "log_group_id" : "7733882e-f7fa-4fb0-a460-0605c48a2280",  
    "loadbalancer_id" : "47ecc304-3f1a-4cc6-9c1c-72add483b9ce"  
  },  
  "request_id" : "59662f86620f8fc09c908eed060a2f0e"  
}
```

## Status Codes

| Status Code | Description |
|-------------|-------------|
| 200         | OK          |

## Error Codes

See [Error Codes](#).

## 4.16.4 Updating a Log

### Function

This API is used to update a log.

### Calling Method

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



## URI

PUT /v3/{project\_id}/elb/logtanks/{logtank\_id}

**Table 4-485** Path Parameters

| Parameter  | Mandatory | Type   | Description               |
|------------|-----------|--------|---------------------------|
| project_id | Yes       | String | Specifies the project ID. |
| logtank_id | Yes       | String | Specifies the log ID.     |

## Request Parameters

**Table 4-486** Request header parameters

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

**Table 4-487** Request body parameters

| Parameter | Mandatory | Type                                | Description   |
|-----------|-----------|-------------------------------------|---|
| logtank   | Yes       | <a href="#">UpdateLogtankOption</a> | Specifies the request parameter for updating a log object |

**Table 4-488** UpdateLogtankOption

| Parameter    | Mandatory | Type   | Description   |
|--------------|-----------|--------|---|
| log_group_id | No        | String | Specifies the log group ID. This parameter is available for all services other than ELB.<br>Minimum: <b>1</b><br>Maximum: <b>36</b>                     |
| log_topic_id | No        | String | Specifies the ID of the log subscription topic. This parameter is available for all services other than ELB.<br>Minimum: <b>1</b><br>Maximum: <b>36</b> |

## Response Parameters

Status code: 200

**Table 4-489** Response body parameters

| Parameter  | Type                  | Description  |
|------------|-----------------------|--|
| request_id | String                | Specifies the response body to the request for updating a log. |
| logtank    | <b>Logtank</b> object | Specifies the log details.                                     |

**Table 4-490** Logtank

| Parameter       | Type   | Description                          |
|-----------------|--------|--------------------------------------|
| id              | String | Specifies the log ID.                |
| project_id      | String | Specifies the ID of a load balancer. |
| loadbalancer_id | String | Specifies the ID of a load balancer. |
| log_group_id    | String | Specifies the log group ID.          |
| log_topic_id    | String | Specifies the log topic ID.          |

## Example Requests

Updating a log

```
PUT https://{ELB_Endpoint}/v3/060576798a80d5762fafc01a9b5eedc7/elb/logtanks/603e507f-3e18-498b-9460-01a3b6c28fc5
```

```
{
  "logtank": {
    "log_topic_id": "5b9b8370-a1fc-4c59-a509-483a673c8a94",
    "log_group_id": "7733882e-f7fa-4fb0-a460-0605c48a2280"
  }
}
```

## Example Responses

Status code: 200

OK

```
{
  "logtank": {
    "project_id": "060576798a80d5762fafc01a9b5eedc7",
    "log_topic_id": "5b9b8370-a1fc-4c59-a509-483a673c8a94",
    "id": "603e507f-3e18-498b-9460-01a3b6c28fc5",
    "log_group_id": "7733882e-f7fa-4fb0-a460-0605c48a2280",
    "loadbalancer_id": "47ecc304-3f1a-4cc6-9c1c-72add483b9ce"
  },
}
```

```
"request_id" : "59662f86620f8fc09c908eed060a2f0e"  
}
```

## Status Codes

| Status Code | Description |
|-------------|-------------|
| 200         | OK          |

## Error Codes

See [Error Codes](#).

## 4.16.5 Deleting a Log

### Function

This API is used to delete a log.

### Calling Method

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

### URI

DELETE /v3/{project\_id}/elb/logtanks/{logtank\_id}

**Table 4-491** Path Parameters

| Parameter  | Mandatory | Type   | Description               |
|------------|-----------|--------|---------------------------|
| project_id | Yes       | String | Specifies the project ID. |
| logtank_id | Yes       | String | Specifies the log ID.     |

### Request Parameters

**Table 4-492** 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 log

```
DELETE https://{ELB_Endpoint}/v3/060576798a80d5762fafc01a9b5eedc7/elb/logtanks/  
603e507f-3e18-498b-9460-01a3b6c28fc5
```

## Example Responses

None

## Status Codes

| Status Code | Description |
|-------------|-------------|
| 204         | No Content  |

## Error Codes

See [Error Codes](#).

# 5 Examples

## 5.1 Creating a Dedicated Load Balancer and Binding a New EIP to It

### Scenarios

Call APIs to create a dedicated load balancer and bind a new EIP to it.

### Prerequisites

You have created a VPC and a subnet.

### Procedure

1. Query the subnet you have created.
  - a. Send **GET** `https://{vpc_endpoint}/v1/{project_id}/subnets`. *project\_id* indicates the project ID.
  - b. Add **X-Auth-Token** to the request header.
  - c. Check the response.

- The request is successful if the following response is displayed:

```
{
  "subnets": [
    {
      "id": "0535759e-8104-49d9-902c-a05185a94bdf", // Subnet ID
      "name": "subnet-001", // Subnet name
      "description": "",
      "cidr": "172.16.66.0/24", //IPv4 address range
      "dnsList": [
        "100.125.4.6"
      ],
      "status": "ACTIVE",
      "vpc_id": "44789a9f-3e80-451a-ac03-0818f99b6cdd", // VPC ID
      "ipv6_enable": true,
      "gateway_ip_v6": "2001:db8:a583:37c::1",
      "cidr_v6": "2001:db8:a583:37c::/64",
      "gateway_ip": "172.16.66.1",
      "dhcp_enable": true,
      "primary_dns": "100.125.4.6",
      "availability_zone": "eu-de-01", //AZ of the subnet
    }
  ]
}
```

```
"neutron_network_id": "0535759e-8104-49d9-902c-a05185a94bdf", // Network ID
"neutron_subnet_id": "1492f0ba-cfce-4e2c-86f7-561d757dfcee", // IPv4 subnet ID
"neutron_subnet_id_v6": "3c052475-b50b-49b9-abb1-558bad45e592",
"extra_dhcp_opts": [
  {
    "opt_value": "8760h",
    "opt_name": "addresstime"
  }
]
}
]
```

- If the request is abnormal, locate the fault by referring to [Error Codes](#).
2. Create a dedicated load balancer and bind a new EIP to it.
    - a. Send **POST** `https://{elb_endpoint}/v3/{project_id}/elb/loadbalancers`. `project_id` indicates the project ID.
    - b. Add **X-Auth-Token** to the request header.
    - c. Ensure that the following parameters, including **publicip**, are passed in the request body:

```
{
  "loadbalancer": {
    "vpc_id": "e5a892ff-3c33-44ef-ada5-b713eb1f7a8b",
    "availability_zone_list": [
      "br-iaas-odin1a"
    ],
    "admin_state_up": true,
    "vip_subnet_cidr_id": "1800b6b8-a69f-4719-813d-24d62aaf32bd",
    "name": "elb-ipv4",
    "publicip": {
      "network_type": "5_bgp",
      "bandwidth": {
        "size": 2,
        "share_type": "PER",
        "charge_mode": "bandwidth",
        "name": "elb_eip_bandwidth"
      }
    }
  }
}
```

- d. Check the response.
  - The request is successful if the following response is displayed:

```
{
  "request_id": "21177eb184c52c5a4540c78dc7fdaee4",
  "loadbalancer": {
    "id": "a2556f92-3310-4173-a6d1-0b2d0bb68478",
    "project_id": "060576782980d5762f9ec014dd2f1148",
    "name": "elb-ipv4",
    "description": "",
    "vip_port_id": "fff961a9-4514-4469-84d4-a2bc4fbdfbeb",
    "vip_address": "192.168.0.162",
    "admin_state_up": true,
    "provisioning_status": "ACTIVE",
    "operating_status": "ONLINE",
    "listeners": [],
    "pools": [],
    "tags": [],
    "provider": "vlb",
    "created_at": "2021-02-23T08:50:19Z",
    "updated_at": "2021-02-23T08:50:19Z",
    "vpc_id": "e5a892ff-3c33-44ef-ada5-b713eb1f7a8b",
    "enterprise_project_id": "0",
    "availability_zone_list": [
```

```
    "br-iaas-odin1a"
  ],
  "ipv6_vip_address": null,
  "ipv6_vip_virsubnet_id": null,
  "ipv6_vip_port_id": null,
  "ipv6_bandwidth": null,
  "publicips": [
    {
      "publicip_id": "12cba100-764e-476c-bf3f-8aba98782cf5",
      "publicip_address": "10.246.173.188",
      "ip_version": 4
    }
  ],
  "elb_virsubnet_ids": [
    "4df3e391-5ebf-4300-b614-cf5a4e793666"
  ],
  "elb_virsubnet_type": "dualstack",
  "ip_target_enable": false,
  "frozen_scene": null,
  "eips": [
    {
      "eip_id": "12cba100-764e-476c-bf3f-8aba98782cf5",
      "eip_address": "10.246.173.188",
      "ip_version": 4
    }
  ],
  "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": "1800b6b8-a69f-4719-813d-24d62aaf32bd"
}
```

- If the request is abnormal, locate the fault by referring to [Error Codes](#).

## 5.2 Adding a Listener to a Dedicated Load Balancer

### Scenarios

Call the API to add a listener to a dedicated load balancer.

### Prerequisites

- You have created a dedicated load balancer.
- You have obtained the ID of the dedicated load balancer.

### Procedure

1. Add a listener.
  - a. Send **POST** `https://{elb_endpoint}/v3/{project_id}/elb/listeners`. `project_id` indicates the project ID.
  - b. Add **X-Auth-Token** to the request header.
  - c. Ensure that the following parameters are passed in the request body:

```
{
  "listener": {
    "protocol_port": 80, // Frontend port. The listener will use this port to receive requests.
```

```
"protocol": "HTTP", // Frontend protocol. The listener will use this protocol to receive requests.
"loadbalancer_id": "f77281cb-9f58-4347-8f82-2180d8bea789", // Load balancer that the listener is added to
  "name": "my_listener" // Listener name
}
}
```

d. Check the response.

- The request is successful if the following response is displayed:

```
{
  "listener": {
    "id": "90ad2705-4ffd-43d3-8f75-af8086bde841",
    "name": "my_listener",
    "protocol_port": 80,
    "protocol": "HTTP",
    "description": "",
    "default_tls_container_ref": null,
    "admin_state_up": true,
    "loadbalancers": [
      {
        "id": "f77281cb-9f58-4347-8f82-2180d8bea789"
      }
    ],
    "client_ca_tls_container_ref": null,
    "project_id": "057ef081eb00d2732fd1c01a9be75e6f",
    "sni_container_refs": [],
    "connection_limit": -1,
    "default_pool_id": null,
    "tls_ciphers_policy": null,
    "tags": [],
    "created_at": "2020-11-21T03:09:13Z",
    "updated_at": "2020-11-21T03:09:13Z",
    "http2_enable": false,
    "insert_headers": {
      "X-Forwarded-ELB-IP": false,
      "X-Forwarded-Host": true,
      "X-Forwarded-For-Port": false,
      "X-Forwarded-Port": false
    },
    "member_timeout": 60,
    "client_timeout": 60,
    "keepalive_timeout": 60,
    "ipgroup": null,
    "enable_member_retry": true,
    "transparent_client_ip_enable": true
  },
  "request_id": "fcd61ee6a6a6c673c65fa0df0577fed9"
}
```

- If the request is abnormal, locate the fault by referring to [Error Codes](#).

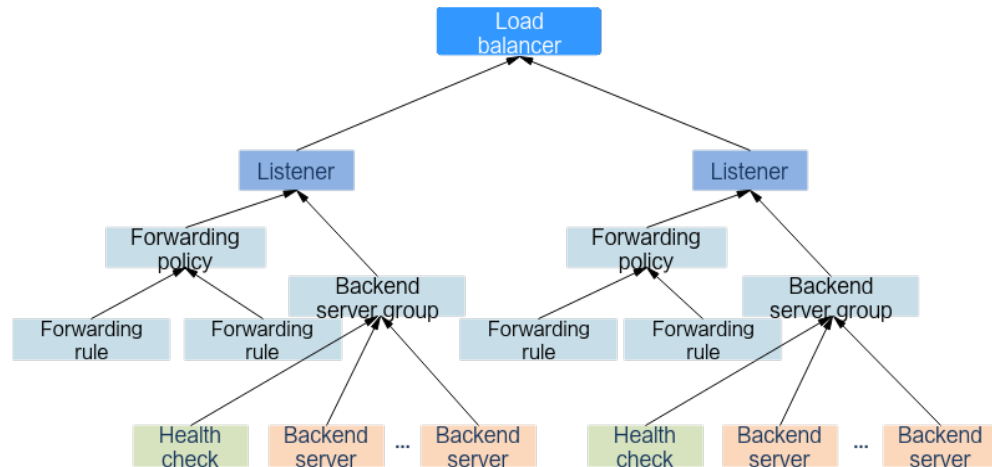
## 5.3 Deleting a Dedicated Load Balancer

### Scenarios

Call APIs to delete a dedicated load balancer.

Before you delete a dedicated load balancer, delete all resources associated with it. [Figure 5-1](#) shows the associated resources.



**Figure 5-1** Resources associated with a dedicated load balancer

## Procedure

Perform the following steps to delete the associated resources and the load balancer. Skip the corresponding step if the associated resources do not exist. For example, you can skip **1** if no health check is configured.

1. Delete the health check configured for each associated backend server group.
  - a. Send **DELETE** `https://{elb_endpoint}/v3/{project_id}/elb/healthmonitors/{healthmonitor_id}`. *project\_id* indicates the project ID, and *healthmonitor\_id* indicates the health check ID.
  - b. Add **X-Auth-Token** to the request header.
  - c. Check the response.
    - If the request is successful, 204 is returned, and the response body is empty.
    - If the request is abnormal, locate the fault by referring to **Error Codes**.
2. Remove backend servers from each associated backend server group.
  - a. Send **DELETE** `https://{elb_endpoint}/v3/{project_id}/elb/pools/{pool_id}/members/{member_id}`. *project\_id* indicates the project ID, *pool\_id* indicates the backend server group ID, and *member\_id* indicates the backend server ID.
  - b. Add **X-Auth-Token** to the request header.
  - c. Check the response.
    - If the request is successful, 204 is returned, and the response body is empty.
    - If the request is abnormal, locate the fault by referring to **Error Codes**.
3. Delete each associated backend server group.
  - a. Send **DELETE** `https://{elb_endpoint}/v3/{project_id}/elb/pools/{pool_id}`. *project\_id* indicates the project ID, and *pool\_id* indicates the backend server group ID.

- b. Add **X-Auth-Token** to the request header.
  - c. Check the response.
    - If the request is successful, 204 is returned, and the response body is empty.
    - If the request is abnormal, locate the fault by referring to [Error Codes](#).
4. Delete the forwarding rules added to each listener.
    - a. Send **DELETE** `https://{elb_endpoint}/v3/{project_id}/elb/l7policies/{policy_id}/rules/{rule_id}`. *project\_id* indicates the project ID, *policy\_id* indicates the forwarding policy ID, and *rule\_id* indicates the forwarding rule ID.
    - b. Add **X-Auth-Token** to the request header.
    - c. Check the response.
      - If the request is successful, 204 is returned, and the response body is empty.
      - If the request is abnormal, locate the fault by referring to [Error Codes](#).
  5. Delete the forwarding policies added to each listener.
    - a. Send **DELETE** `https://{elb_endpoint}/v3/{project_id}/elb/l7policies/{policy_id}`. *project\_id* indicates the project ID, and *policy\_id* indicates the forwarding policy ID.
    - b. Add **X-Auth-Token** to the request header.
    - c. Check the response.
      - If the request is successful, 204 is returned, and the response body is empty.
      - If the request is abnormal, locate the fault by referring to [Error Codes](#).
  6. Delete each listener added to the load balancer.
    - a. Send **DELETE** `https://{elb_endpoint}/v3/{project_id}/elb/listeners/{listener_id}`. *project\_id* indicates the project ID, and *listener\_id* indicates the listener ID.
    - b. Add **X-Auth-Token** to the request header.
    - c. Check the response.
      - If the request is successful, 204 is returned, and the response body is empty.
      - If the request is abnormal, locate the fault by referring to [Error Codes](#).
  7. Delete the load balancer.
    - a. Send **DELETE** `https://{elb_endpoint}/v3/{project_id}/elbloadbalancers/{loadbalancer_id}`. *project\_id* indicates the project ID, and *loadbalancer\_id* indicates the load balancer ID.

- b. Add **X-Auth-Token** to the request header.
- c. Check the response.
  - If the request is successful, 204 is returned, and the response body is empty.
  - If the request is abnormal, locate the fault by referring to [Error Codes](#).

## 5.4 Querying the ID of an ECS Used as a Backend Server

### Scenarios

Call APIs to obtain the ID of an ECS used as a backend server of a load balancer.

### Prerequisites

You have created a load balancer, a backend server group, and a backend server.

### Procedure

Send **GET /v3/{project\_id}/elb/members**. *project\_id* indicates the project ID. You can add other criteria as you needed. For details, see the API document. Add **X-Auth-Token** to the request header.

View the response result and obtain the ECS ID from **instance\_id**.

- The request is successful if the following response is displayed:

```
{
  "request_id": "0df89f0ad2ecf0e0a5688978d28e9a6d",
  "members": [
    {
      "weight": 1,
      "admin_state_up": true,
      "project_id": "04dd36f9c0000fe22f9fc00b409f1sq1",
      "address": "192.168.2.96",
      "protocol_port": 80,
      "id": "0b7c1e58-5940-41c1-a7c5-dbe4b3f23e4w",
      "operating_status": ONLINE,
      "status": [
        {
          "listener_id": "73bea9d6-fb7f-47cc-b949-c3382abb1f46",
          "operating_status": "ONLINE"
        }
      ]
    },
    {
      "instance_id": "6985a0dc-5884-40f2-9426-15fb4bab8f1d", // ECS ID
      "device_id": "6985a0dc-5884-40f2-9426-15fb4bab8f1d",
      "device_owner": "compute:az1",
      "member_type": "instance",
      "created_at": "2023-05-15T07:15:43Z",
      "updated_at": "2023-05-15T07:15:53Z",
      "loadbalancer_id": "955af176-4275-49ac-b47e-05912x9dj33c",
      "loadbalancers": [
        {
          "id": "955af176-4275-49ac-b47e-05912x9dj33c"
        }
      ]
    }
  ],
  "pool_id": "b6e6fdcf-4f4d-4d21-95ca-925143af6de8",
  "ip_version": "v4",
}
```

```
    "subnet_cidr_id": "b765590e-905e-4e13-9d34-0e0ea9de2k9d"  
  }  
],  
"page_info": {  
  "previous_marker": "0b7c1e58-5940-41c1-a7c5-dbe4b3f83506",  
  "current_count": 1  
}  
}
```

- If the request is abnormal, locate the fault by referring to [Error Codes](#).

# 6 Permissions and Supported Actions

---

## 6.1 Introduction

This section describes fine-grained permissions management for ELB. If your Huawei Cloud account does not need individual IAM users, then you may skip this chapter.

By default, new IAM users do not have permissions assigned. You need to add a user to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

An account has all of the permissions required to call all APIs, but IAM users must have the required permissions specifically assigned. The permissions required for calling an API are determined by the actions supported by the API. Only users who have been granted permissions allowing the actions can call the API successfully. For example, if an IAM user queries backend servers using an API, the user must have been granted permissions that allow the `elb:servers:list` action.

## Supported Actions

ELB provides system-defined policies that can be directly used in IAM. You can also create custom policies and use them to supplement system-defined policies, implementing more refined access control. Operations supported by policies are specific to APIs. The following are common concepts related to policies:

- **Permissions:** Defined by actions in a custom policy.
- **APIs:** REST APIs that can be called in a custom policy.
- **Actions:** Added to a custom policy to control permissions for specific operations.
- **Dependencies:** actions which a specific action depends on. When allowing an action for a user, you also need to allow any existing action dependencies for that user.

**Supported Actions (V3)** describes the custom policy authorization items supported by ELB.

- **Load balancer actions**, including actions supported by all load balancer APIs, such as the APIs for creating a load balancer, querying a load balancer, querying the load balancer status tree, querying the load balancer list, updating a load balancer, and deleting a load balancer.

 **NOTE**

The check mark (√) indicates that an action takes effect. The cross mark (x) indicates that an action does not take effect.

## 6.2 Supported Actions (V2)

### 6.2.1 Load Balancer

| Permission                                 | API   | Action                   | IAM Project | Enterprise Project |
|--|---|--------------------------|-------------|--------------------|
| Creates a load balancer                    | POST /v2/{project_id}/elb/loadbalancers                           | elb:loadbalancers:create | √           | √                  |
| Queries a load balancer                    | GET /v2/{project_id}/elb/loadbalancers/{loadbalancer_id}          | elb:loadbalancers:get    | √           | √                  |
| Queries the status tree of a load balancer | GET /v2/{project_id}/elb/loadbalancers/{loadbalancer_id}/statuses | elb:loadbalancers:get    | √           | √                  |
| Queries load balancers                     | GET /v2/{project_id}/elb/loadbalancers                            | elb:loadbalancers:list   | √           | √                  |
| Updates a load balancer                    | PUT /v2/{project_id}/elb/loadbalancers/{loadbalancer_id}          | elb:loadbalancers:put    | √           | √                  |

| Permission              | API   | Action                   | IAM Project | Enterprise Project |
|-------------------------|---|--------------------------|-------------|--------------------|
| Deletes a load balancer | DELETE /v2/{project_id}/elb/loadbalancers/{loadbalancer_id} | elb:loadbalancers:delete | √           | √                  |

## 6.2.2 Listener

| Permission          | API   | Action               | IAM Project | Enterprise Project |
|---------------------|---|----------------------|-------------|--------------------|
| Adds a listener     | POST /v2/{project_id}/elb/listeners                 | elb:listeners:create | √           | √                  |
| Queries a listener  | GET /v2/{project_id}/elb/listeners/{listener_id}    | elb:listeners:get    | √           | √                  |
| Queries listeners   | GET /v2/{project_id}/elb/listeners                  | elb:listeners:list   | √           | √                  |
| Modifies a listener | PUT /v2/{project_id}/elb/listeners/{listener_id}    | elb:listeners:put    | √           | √                  |
| Deletes a listener  | DELETE /v2/{project_id}/elb/listeners/{listener_id} | elb:listeners:delete | √           | √                  |

## 6.2.3 Backend Server Group

| Permission                  | API                             | Action           | IAM Project | Enterprise Project |
|-----------------------------|---------------------------------|------------------|-------------|--------------------|
| Adds a backend server group | POST /v2/{project_id}/elb/pools | elb:pools:create | √           | √                  |

| Permission                      | API   | Action           | IAM Project | Enterprise Project |
|---------------------------------|---|------------------|-------------|--------------------|
| Queries a backend server group  | GET /v2/{project_id}/elb/pools/{pool_id}    | elb:pools:get    | √           | √                  |
| Queries backend server groups   | GET /v2/{project_id}/elb/pools              | elb:pools:list   | √           | √                  |
| Modifies a backend server group | PUT /v2/{project_id}/elb/pools/{pool_id}    | elb:pools:put    | √           | √                  |
| Deletes a backend server group  | DELETE /v2/{project_id}/elb/pools/{pool_id} | elb:pools:delete | √           | √                  |

## 6.2.4 Backend Server

| Permission               | API  | Action             | IAM Project | Enterprise Project |
|--------------------------|--|--------------------|-------------|--------------------|
| Adds a backend server    | POST /v2/{project_id}/elb/pools/{pool_id}/members            | elb:members:create | √           | √                  |
| Queries a backend server | GET /v2/{project_id}/elb/pools/{pool_id}/members/{member_id} | elb:members:get    | √           | √                  |



| Permission                | API   | Action             | IAM Project | Enterprise Project |
|---------------------------|---|--------------------|-------------|--------------------|
| Queries backend servers   | GET /v2/{project_id}/elb/pools/{pool_id}/members                | elb:members:list   | √           | √                  |
| Modifies a backend server | PUT /v2/{project_id}/elb/pools/{pool_id}/members/{member_id}    | elb:members:put    | √           | √                  |
| Removes a backend server  | DELETE /v2/{project_id}/elb/pools/{pool_id}/members/{member_id} | elb:members:delete | √           | √                  |

## 6.2.5 Health Check

| Permission                | API   | Action                    | IAM Project | Enterprise Project |
|---------------------------|---|---------------------------|-------------|--------------------|
| Configures a health check | POST /v2/{project_id}/elb/healthmonitors                      | elb:healthmonitors:create | √           | √                  |
| Queries a health check    | GET /v2/{project_id}/elb/healthmonitors/{healthmonitor_id}    | elb:healthmonitors:get    | √           | √                  |
| Queries health checks     | GET /v2/{project_id}/elb/healthmonitors                       | elb:healthmonitors:list   | √           | √                  |
| Modifies a health check   | PUT /v2/{project_id}/elb/healthmonitors/{healthmonitor_id}    | elb:healthmonitors:put    | √           | √                  |
| Deletes a health check    | DELETE /v2/{project_id}/elb/healthmonitors/{healthmonitor_id} | elb:healthmonitors:delete | √           | √                  |

## 6.2.6 Forwarding Policy

| Permission                  | API  | Action                | IAM Project | Enterprise Project |
|-----------------------------|--|-----------------------|-------------|--------------------|
| Adds a forwarding policy    | POST /v2/{project_id}/elb/l7policies                 | elb:l7policies:create | √           | √                  |
| Queries a forwarding policy | GET /v2/{project_id}/elb/l7policies/{l7policy_id}    | elb:l7policies:get    | √           | √                  |
| Queries forwarding policies | GET /v2/{project_id}/elb/l7policies                  | elb:l7policies:list   | √           | √                  |
| Updates a forwarding policy | PUT /v2/{project_id}/elb/l7policies/{l7policy_id}    | elb:l7policies:put    | √           | √                  |
| Deletes a forwarding policy | DELETE /v2/{project_id}/elb/l7policies/{l7policy_id} | elb:l7policies:delete | √           | √                  |

## 6.2.7 Forwarding Rule

| Permission                | API   | Action             | IAM Project | Enterprise Project |
|---------------------------|---|--------------------|-------------|--------------------|
| Creates a forwarding rule | POST /v2/{project_id}/elb/l7policies/{l7policy_id}/rules            | elb:l7rules:create | √           | √                  |
| Queries a forwarding rule | GET /v2/{project_id}/elb/l7policies/{l7policy_id}/rules/{l7rule_id} | elb:l7rules:get    | √           | √                  |

| Permission                | API  | Action             | IAM Project | Enterprise Project |
|---------------------------|--|--------------------|-------------|--------------------|
| Queries forwarding rules  | GET /v2/{project_id}/elb/l7policies/{l7policy_id}/rules                | elb:l7rules:list   | √           | √                  |
| Updates a forwarding rule | PUT /v2/{project_id}/elb/l7policies/{l7policy_id}/rules/{l7rule_id}    | elb:l7rules:put    | √           | √                  |
| Deletes a forwarding rule | DELETE /v2/{project_id}/elb/l7policies/{l7policy_id}/rules/{l7rule_id} | elb:l7rules:delete | √           | √                  |

## 6.2.8 Whitelist

| Permission           | API   | Action                | IAM Project | Enterprise Project |
|----------------------|---|-----------------------|-------------|--------------------|
| Adds a whitelist     | POST /v2/{project_id}/elb/whitelists                  | elb:whitelists:create | √           | √                  |
| Queries a whitelist  | GET /v2/{project_id}/elb/whitelists/{whitelist_id}    | elb:whitelists:get    | √           | √                  |
| Queries whitelists   | GET /v2/{project_id}/elb/whitelists                   | elb:whitelists:list   | √           | √                  |
| Modifies a whitelist | PUT /v2/{project_id}/elb/whitelists/{whitelist_id}    | elb:whitelists:put    | √           | √                  |
| Deletes a whitelist  | DELETE /v2/{project_id}/elb/whitelists/{whitelist_id} | elb:whitelists:delete | √           | √                  |

## 6.2.9 SSL Certificate

| Permission             | API   | Action                  | IAM Project | Enterprise Project |
|------------------------|---|-------------------------|-------------|--------------------|
| Creates a certificate  | POST /v2/{project_id}/elb/certificates                    | elb:certificates:create | √           | √                  |
| Queries a certificate  | GET /v2/{project_id}/elb/certificates/{certificate_id}    | elb:certificates:get    | √           | √                  |
| Queries certificates   | GET /v2/{project_id}/elb/certificates                     | elb:certificates:list   | √           | √                  |
| Modifies a certificate | PUT /v2/{project_id}/elb/certificates/{certificate_id}    | elb:certificates:put    | √           | √                  |
| Deletes a certificate  | DELETE /v2/{project_id}/elb/certificates/{certificate_id} | elb:certificates:delete | √           | √                  |

## 6.2.10 Quota

| Permission                      | API                                      | Action          | IAM Project | Enterprise Project |
|---------------------------------|--|-----------------|-------------|--------------------|
| Queries default resource quotas | GET /v2/{project_id}/elb/quotas/defaults | elb:quotas:list | √           | x                  |

| Permission                      | API                             | Action          | IAM Project | Enterprise Project |
|---------------------------------|---------------------------------|-----------------|-------------|--------------------|
| Queries current resource quotas | GET /v2/{project_id}/elb/quotas | elb:quotas:list | √           | x                  |

## 6.2.11 Tag

| Permission  | API   | Action                      | IAM Project | Enterprise Project |
|---|---|-----------------------------|-------------|--------------------|
| Queries all tags of a load balancer.                      | GET /v2.0/{project_id}/loadbalancers/{loadbalancer_id}/tags         | elb:loadbalancerTags:get    | √           | x                  |
| Adds or deletes load balancer tags in batches.            | POST /v2.0/{project_id}/loadbalancers/{loadbalancer_id}/tags/action | elb:loadbalancerTags:create | √           | x                  |
| Queries tags of all load balancers in a specific project. | GET /v2.0/{project_id}/loadbalancers/tags                           | elb:loadbalancerTags:get    | √           | x                  |
| Queries load balancers by tag.                            | POST /v2.0/{project_id}/loadbalancers/resource_instances/action     | elb:loadbalancerTags:get    | √           | x                  |
| Adds a tag to a specific load balancer.                   | POST /v2.0/{project_id}/loadbalancers/{loadbalancer_id}/tags        | elb:loadbalancerTags:create | √           | x                  |

| Permission  | API  | Action                      | IAM Project | Enterprise Project |
|---|--|-----------------------------|-------------|--------------------|
| Deletes a tag with a specific key from a load balancer. | DELETE /v2.0/{project_id}/loadbalancers/{loadbalancer_id}/tags/{key} | elb:loadbalancerTags:delete | √           | x                  |
| Queries all tags of a listener.                         | GET /v2.0/{project_id}/listeners/{listener_id}/tags                  | elb:listenerTags:get        | √           | x                  |
| Adds or deletes listener tags in batches.               | POST /v2.0/{project_id}/listeners/{listener_id}/tags/action          | elb:listenerTags:create     | √           | x                  |
| Queries the tags of all listeners.                      | GET /v2.0/{project_id}/listeners/tags                                | elb:listenerTags:get        | √           | x                  |
| Queries listeners by tag.                               | POST /v2.0/{project_id}/listeners/resource_instances/action          | elb:listenerTags:get        | √           | x                  |
| Adds a tag to a specific listener.                      | POST /v2.0/{project_id}/listeners/{listener_id}/tags                 | elb:listenerTags:create     | √           | x                  |
| Deletes a tag with a specific key from a listener.      | DELETE /v2.0/{project_id}/listeners/{listener_id}/tags/{key}         | elb:listenerTags:delete     | √           | x                  |

## 6.2.12 Precautions for API Permissions

**elb:quotas:list** controls the fine-grained permission for quota display.

**elb:logtanks:create**, **elb:logtanks:list**, **elb:logtanks:get**, **elb:logtanks:put**, and **elb:logtanks:delete** control the fine-grained permission for log creation, log list query, log details query, log update, and log deletion.

The logging function relies on LTS, and the **lts:\*:get\*** and **lts:\*:list\*** permissions at the project level are required.

The monitoring function relies on Cloud Eye.

## 6.3 Supported Actions (V3)

### 6.3.1 Load Balancer

| Permission                                 | API   | Action                   | IAM Project | Enterprise Project |
|--|---|--------------------------|-------------|--------------------|
| Creates a load balancer                    | POST /v3/{project_id}/elb/loadbalancers                           | elb:loadbalancers:create | √           | √                  |
| Queries a load balancer                    | GET /v3/{project_id}/elb/loadbalancers/{loadbalancer_id}          | elb:loadbalancers:get    | √           | √                  |
| Queries the status tree of a load balancer | GET /v3/{project_id}/elb/loadbalancers/{loadbalancer_id}/statuses | elb:loadbalancers:get    | √           | √                  |
| Queries load balancers                     | GET /v3/{project_id}/elb/loadbalancers                            | elb:loadbalancers:list   | √           | √                  |
| Updates a load balancer                    | PUT /v3/{project_id}/elb/loadbalancers/{loadbalancer_id}          | elb:loadbalancers:put    | √           | √                  |
| Deletes a load balancer                    | DELETE /v3/{project_id}/elb/loadbalancers/{loadbalancer_id}       | elb:loadbalancers:delete | √           | √                  |

### 6.3.2 Listener

| Permission          | API   | Action               | IAM Project | Enterprise Project |
|---------------------|---|----------------------|-------------|--------------------|
| Adds a listener     | POST /v3/{project_id}/elb/listeners                 | elb:listeners:create | √           | √                  |
| Queries a listener  | GET /v3/{project_id}/elb/listeners/{listener_id}    | elb:listeners:get    | √           | √                  |
| Queries listeners   | GET /v3/{project_id}/elb/listeners                  | elb:listeners:list   | √           | √                  |
| Modifies a listener | PUT /v3/{project_id}/elb/listeners/{listener_id}    | elb:listeners:put    | √           | √                  |
| Deletes a listener  | DELETE /v3/{project_id}/elb/listeners/{listener_id} | elb:listeners:delete | √           | √                  |

### 6.3.3 Backend Server Group

| Permission                     | API                                      | Action           | IAM Project | Enterprise Project |
|--------------------------------|--|------------------|-------------|--------------------|
| Creates a backend server group | POST /v3/{project_id}/elb/pools          | elb:pools:create | √           | √                  |
| Queries a backend server group | GET /v3/{project_id}/elb/pools/{pool_id} | elb:pools:get    | √           | √                  |
| Queries backend server groups  | GET /v3/{project_id}/elb/pools           | elb:pools:list   | √           | √                  |



| Permission                      | API   | Action           | IAM Project | Enterprise Project |
|---------------------------------|---|------------------|-------------|--------------------|
| Modifies a backend server group | PUT /v3/{project_id}/elb/pools/{pool_id}    | elb:pools:put    | √           | √                  |
| Deletes a backend server group  | DELETE /v3/{project_id}/elb/pools/{pool_id} | elb:pools:delete | √           | √                  |

### 6.3.4 Backend Server

| Permission                | API   | Action             | IAM Project | Enterprise Project |
|---------------------------|---|--------------------|-------------|--------------------|
| Adds a backend server     | POST /v3/{project_id}/elb/pools/{pool_id}/members               | elb:members:create | √           | √                  |
| Queries a backend server  | GET /v3/{project_id}/elb/pools/{pool_id}/members/{member_id}    | elb:members:get    | √           | √                  |
| Queries backend servers   | GET /v3/{project_id}/elb/pools/{pool_id}/members                | elb:members:list   | √           | √                  |
| Modifies a backend server | PUT /v3/{project_id}/elb/pools/{pool_id}/members/{member_id}    | elb:members:put    | √           | √                  |
| Removes a backend server  | DELETE /v3/{project_id}/elb/pools/{pool_id}/members/{member_id} | elb:members:delete | √           | √                  |

### 6.3.5 Health Check

| Permissi on                | API   | Action                    | IAM Project | Enterprise Project |
|----------------------------|---|---------------------------|-------------|--------------------|
| Configur es a health check | POST /v3/{project_id}/elb/healthmonitors                      | elb:healthmonitors:create | √           | √                  |
| Queries a health check     | GET /v3/{project_id}/elb/healthmonitors/{healthmonitor_id}    | elb:healthmonitors:get    | √           | √                  |
| Queries health checks      | GET /v3/{project_id}/elb/healthmonitors                       | elb:healthmonitors:list   | √           | √                  |
| Modifies a health check    | PUT /v3/{project_id}/elb/healthmonitors/{healthmonitor_id}    | elb:healthmonitors:put    | √           | √                  |
| Deletes a health check     | DELETE /v3/{project_id}/elb/healthmonitors/{healthmonitor_id} | elb:healthmonitors:delete | √           | √                  |

### 6.3.6 Forwarding Policy

| Permis sion                  | API   | Action                | IAM Project | Enterprise Project |
|------------------------------|---|-----------------------|-------------|--------------------|
| Adds a forward ing policy    | POST /v3/{project_id}/elb/l7policies              | elb:l7policies:create | √           | √                  |
| Queries a forward ing policy | GET /v3/{project_id}/elb/l7policies/{l7policy_id} | elb:l7policies:get    | √           | √                  |
| Queries forward ing policies | GET /v3/{project_id}/elb/l7policies               | elb:l7policies:l ist  | √           | √                  |

| Permission                  | API  | Action                | IAM Project | Enterprise Project |
|-----------------------------|--|-----------------------|-------------|--------------------|
| Updates a forwarding policy | PUT /v3/{project_id}/elb/l7policies/{l7policy_id}    | elb:l7policies:put    | √           | √                  |
| Deletes a forwarding policy | DELETE /v3/{project_id}/elb/l7policies/{l7policy_id} | elb:l7policies:delete | √           | √                  |

### 6.3.7 Forwarding Rule

| Permission                | API  | Action             | IAM Project | Enterprise Project |
|---------------------------|--|--------------------|-------------|--------------------|
| Creates a forwarding rule | POST /v3/{project_id}/elb/l7policies/{l7policy_id}/rules               | elb:l7rules:create | √           | √                  |
| Queries a forwarding rule | GET /v3/{project_id}/elb/l7policies/{l7policy_id}/rules/{l7rule_id}    | elb:l7rules:get    | √           | √                  |
| Queries forwarding rules  | GET /v3/{project_id}/elb/l7policies/{l7policy_id}/rules                | elb:l7rules:list   | √           | √                  |
| Updates a forwarding rule | PUT /v3/{project_id}/elb/l7policies/{l7policy_id}/rules/{l7rule_id}    | elb:l7rules:put    | √           | √                  |
| Deletes a forwarding rule | DELETE /v3/{project_id}/elb/l7policies/{l7policy_id}/rules/{l7rule_id} | elb:l7rules:delete | √           | √                  |

### 6.3.8 IP Address Group

| Permission                                  | API  | Action              | IAM Project | Enterprise Project |
|---|--|---------------------|-------------|--------------------|
| Creates an IP address group                 | POST /v3/{project_id}/elb/ipgroups                                     | elb:ipgroups:create | √           | √                  |
| Queries an IP address group                 | GET /v3/{project_id}/elb/ipgroups/{ipgroup_id}                         | elb:ipgroups:get    | √           | √                  |
| Queries IP address groups                   | GET /v3/{project_id}/elb/ipgroups                                      | elb:ipgroups:list   | √           | √                  |
| Updates an IP address group                 | PUT /v3/{project_id}/elb/ipgroups/{ipgroup_id}                         | elb:ipgroups:put    | √           | √                  |
| Deletes an IP address group                 | DELETE /v3/{project_id}/elb/ipgroups/{ipgroup_id}                      | elb:ipgroups:delete | √           | √                  |
| Updates IP addresses in an IP address group | PUT /v3/{project_id}/elb/ipgroups/{ipgroup_id}/iplist/create-or-update | elb:ipgroups:put    | √           | √                  |
| Deletes IP addresses in an IP address group | DELETE /v3/{project_id}/elb/ipgroups/{ipgroup_id}/iplist/batch-delete  | elb:ipgroups:put    | √           | √                  |

### 6.3.9 Certificate

| Permission             | API   | Action                  | IAM Project | Enterprise Project |
|------------------------|---|-------------------------|-------------|--------------------|
| Creates a certificate  | POST /v3/{project_id}/elb/certificates                    | elb:certificates:create | √           | √                  |
| Queries a certificate  | GET /v3/{project_id}/elb/certificates/{certificate_id}    | elb:certificates:get    | √           | √                  |
| Queries certificates   | GET /v3/{project_id}/elb/certificates                     | elb:certificates:list   | √           | √                  |
| Modifies a certificate | PUT /v3/{project_id}/elb/certificates/{certificate_id}    | elb:certificates:put    | √           | √                  |
| Deletes a certificate  | DELETE /v3/{project_id}/elb/certificates/{certificate_id} | elb:certificates:delete | √           | √                  |

### 6.3.10 Security Policy

| Permission                       | API   | Action                       | IAM Project | Enterprise Project |
|----------------------------------|---|------------------------------|-------------|--------------------|
| Creates a custom security policy | POST /v3/{project_id}/elb/security-policies | elb:security-policies:create | √           | √                  |

| Permission                       | API  | Action                       | IAM Project | Enterprise Project |
|----------------------------------|--|------------------------------|-------------|--------------------|
| Queries a custom security policy | GET /v3/{project_id}/elb/security-policies/{certificate_id}    | elb:security-policies:get    | √           | √                  |
| Queries custom security policies | GET /v3/{project_id}/elb/security-policies                     | elb:security-policies:list   | √           | √                  |
| Updates a custom security policy | PUT /v3/{project_id}/elb/security-policies/{certificate_id}    | elb:security-policies:put    | √           | √                  |
| Deletes a custom security policy | DELETE /v3/{project_id}/elb/security-policies/{certificate_id} | elb:security-policies:delete | √           | √                  |
| Queries system security policies | GET /v3/{project_id}/elb/system-security-policies              | elb:security-policies:list   | √           | √                  |

### 6.3.11 Quota

| Permission                      | API                                     | Action          | IAM Project | Enterprise Project |
|---------------------------------|---|-----------------|-------------|--------------------|
| Queries current resource quotas | GET /v3/{project_id}/elb/quotas         | elb:quotas:list | √           | √                  |
| Queries quota usage             | GET /v3/{project_id}/elb/quotas/details | elb:quotas:list | √           | √                  |

### 6.3.12 API Version

| Permission              | API           | Action          | IAM Project | Enterprise Project |
|-------------------------|---------------|-----------------|-------------|--------------------|
| Queries the API version | GET /versions | elb:quotas:list | √           | x                  |

### 6.3.13 Availability Zone

| Permission  | API   | Action                      | IAM Project | Enterprise Project |
|-------------|---|-----------------------------|-------------|--------------------|
| Queries AZs | GET /v3/{project_id}/elb/availability-zones | elb:availability-zones:list | √           | √                  |

### 6.3.14 Load Balancer Flavor

| Permission                      | API  | Action           | IAM Project | Enterprise Project |
|---------------------------------|--|------------------|-------------|--------------------|
| Queries default resource quotas | GET /v3/{project_id}/elb/flavors             | elb:flavors:list | √           | x                  |
| Queries current resource quotas | GET /v3/{project_id}/elb/flavors/{flavor_id} | elb:flavors:get  | √           | x                  |

### 6.3.15 Precautions for API Permissions

**elb:quotas:list** controls the fine-grained permission for quota display.

**elb:logtanks:create**, **elb:logtanks:list**, **elb:logtanks:get**, **elb:logtanks:put**, and **elb:logtanks:delete** control the fine-grained permission for log creation, log list query, log details query, log update, and log deletion.

The logging function relies on LTS, and the **lts:\*:get\*** and **lts:\*:list\*** permissions at the project level are required.

The monitoring function relies on Cloud Eye.



# 7 Appendix

## 7.1 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 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.   |

## 7.2 Status Codes

**Table 7-1** 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 7-2** 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.   |

## 7.3 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 7-3** 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>Load balancer</li> <li>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 |  |                              |
| m1a_l7_upstream_rt_max | Maximum Server Response Time | <p>Maximum response time of backend servers (This metric is available only when the frontend protocol is HTTP or HTTPS.)</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>   | ≥ 0 ms | <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) |
|------------------------|-------------------------------|--|-------------|--|------------------------------|
| m1b_l7_upstream_rt_min | Minimum Server Response Time  | <p>Minimum response time of backend servers (This metric is available only when the frontend protocol is HTTP or HTTPS.)</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> | $\geq 0$ ms |  |                              |
| m1c_l7_rt_max          | Maximum Layer-7 Response Time | <p>Maximum response time of the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)</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>                            | $\geq 0$ ms | <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) |
|---------------|-------------------------------------|--|-------------|-------------------------|------------------------------|
| m1d_l7_rt_min | Minimum Layer-7 Response Time       | Minimum response time of the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br><br>The response time starts when the monitored object receives requests from the clients and ends when it returns all responses to the clients.<br><br>Unit: ms | $\geq 0$ ms |                         |                              |
| l7_con_usage  | Layer-7 Concurrent Connection Usage | 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<br><br>Unit: percent (%)   | $\geq 0\%$  | 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%       |   |                              |
| m18_l7_upstream_2xx | 2xx Status Codes_Backend     | Number of 2xx status codes returned by the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s                             | ≥ 0/second | <ul style="list-style-type: none"> <li>Dedicated load balancer - backend server group</li> <li>Shared load balancer - backend server group</li> </ul> | 1 minute                     |
| m19_l7_upstream_3xx | 3xx Status Codes_Backend     | Number of 3xx status codes returned by the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s                             | ≥ 0/second | <ul style="list-style-type: none"> <li>Shared load balancer - backend server group</li> </ul>   |                              |

| Metric ID       | Name                                | Description   | Value          | Monitored Object        | Monitoring Period (Raw Data) |
|-----------------|-------------------------------------|---|----------------|-------------------------|------------------------------|
| m25_l7_resp_Bps | Backend Server Response Bandwidth   | The bandwidth that the monitored object uses to return response to clients<br>Unit: bit/s<br><b>NOTE</b><br>When HTTP/2 is enabled for a listener, this metric cannot be used as a reference.     | $\geq 0$ bit/s |                         |                              |
| m24_l7_req_Bps  | Backend Server Request Bandwidth    | The bandwidth that the monitored object uses to receive requests from clients<br>Unit: bit/s<br><b>NOTE</b><br>When HTTP/2 is enabled for a listener, this metric cannot be used as a reference.  | $\geq 0$ bit/s |                         |                              |
| 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 (%) | $\geq 0\%$     | 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 | Load balancer ID                          |
| lbaas_listener_id | ID of a listener added to a load balancer |
| lbaas_pool_id     | ID of the backend server group            |

## 7.4 Obtaining a Project ID

### Scenarios

A project ID is required for some URLs when an API is called. Therefore, you need to obtain a project ID in advance. Two methods are available:

- [Obtain the Project ID by Calling an API](#)
- [Obtain the Project ID from the Console](#)

### Obtain the Project ID by Calling an API

You can obtain a project ID by calling the API used to [query projects based on specified criteria](#).

The API used to obtain a project ID is GET `https://{Endpoint}/v3/projects`. {Endpoint} is the IAM endpoint and can be obtained from Regions and Endpoints. For details about API authentication, see [Authentication](#).

The following is an example response. The value of **id** is the project ID.

```
{
  "projects": [
    {
      "domain_id": "65ewtrgaggshhk1223245sghjlse684b",
      "is_domain": false,
      "parent_id": "65ewtrgaggshhk1223245sghjlse684b",
      "name": "project_name",
      "description": "",
      "links": {
        "next": null,
        "previous": null,
        "self": "https://www.example.com/v3/projects/a4adasfjljaaakla12334jklga9sasfg"
      },
      "id": "a4adasfjljaaakla12334jklga9sasfg",
      "enabled": true
    }
  ],
  "links": {
    "next": null,
    "previous": null,
    "self": "https://www.example.com/v3/projects"
  }
}
```

### Obtain a Project ID from the Console

To obtain a project ID from the console, perform the following operations:

1. Log in to the management console.
2. Click the username and select **My Credentials** from the drop-down list. On the **API Credentials** page, view the project ID in the project list.