



Elastic Load Balance

API Reference

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1 Before You Start

1.1 Notes and Constraints

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

1.2 Concepts

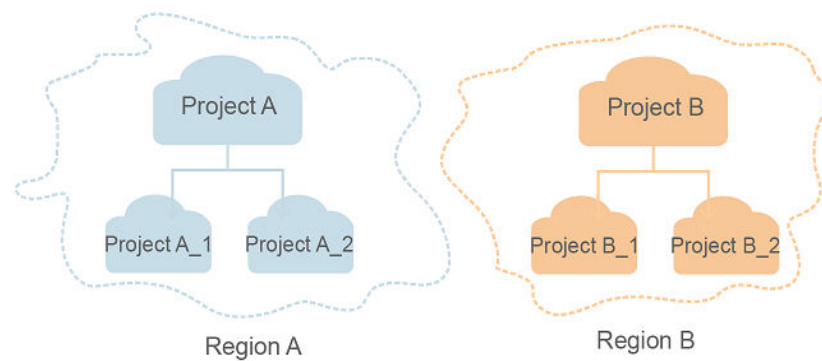
- Account
An account is created upon successful registration. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity, which should not be used directly to perform routine management. To ensure account security, create Identity and Access Management (IAM) users and grant them permissions for routine management.
- User
An IAM user is created by an account in IAM to use cloud services. Each IAM user has its own identity credentials (password and access keys).
API authentication requires information such as the account name, username, and password.
- Region
A region is a geographic area in which cloud resources are deployed. Availability zones (AZs) in the same region can communicate with each other over an intranet, while AZs in different regions are isolated from each other. Deploying cloud resources in different regions can better suit certain user requirements or comply with local laws or regulations.
- AZ
An AZ comprises of one or more physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Computing, network, storage, and other resources in an AZ are logically divided into

multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

- Project

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

Figure 1-1 Project isolation model



2 API Overview

A combination of these two 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 API description

Type	Subtype	Description
ELB API	Load balancer	Creates, modifies, deletes a load balancer, shows the details of a load balancer, lists load balancers, and queries the status tree for a load balancer.
	Listener	Adds, 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 removes a backend server, shows the details of a backend server, and lists backend servers.
	Health check	Configures, modifies, and disables a health check, and shows the details of a health check.
	Forwarding policy	Adds, modifies, and deletes a forwarding policy, shows the details of a forwarding policy, and lists forwarding policies.
	Forwarding rule	Adds, modifies, and deletes a forwarding rule, shows the details of a forwarding rule, and lists forwarding rules.
	Whitelist	Creates, modifies, and deletes a certificate, and lists whitelists.
	SSL certificate	Creates, modifies, and deletes a certificate, and lists certificates.

Type	Subtype	Description
	Tag	Adds a tag to and deletes a tag from a load balancer, batch adds and deletes load balancer tags, lists all tags of a load balancer, lists tags of all load balancers, queries load balancers by tag, adds and deletes a tag to a listener, batch adds and deletes tags to a listener, lists all tags of a listener, lists tags of all listeners, and queries listeners by tag.
ELB enterprise project API	Load balancer	Creates, modifies, deletes a load balancer, shows the details of a load balancer, lists load balancers, and queries the status tree for a load balancer.
	Listener	Adds, 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 removes a backend server, shows the details of a backend server, and lists backend servers.
	Health check	Configures, modifies, and disables a health check, and shows the details of a health check.
	Forwarding policy	Adds, modifies, and deletes a forwarding policy, shows the details of a forwarding policy, and lists forwarding policies.
	Forwarding rule	Adds, modifies, and deletes a forwarding rule, shows the details of a forwarding rule, and lists forwarding rules.
	Whitelist	Creates, modifies, and deletes a certificate, and lists whitelist.
	Certificate	Creates, modifies, and deletes a certificate, and lists certificates.

3 Calling APIs

3.1 Making an API Request

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

Request URI

A request URI is in the following format:

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

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

Table 3-1 URI parameter description

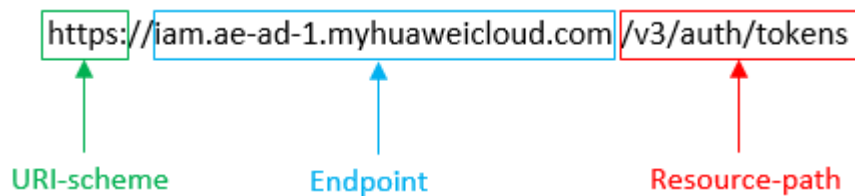
Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from Regions and Endpoints . For example, the endpoint of IAM in the UAE-Abu Dhabi region is iam.ae-ad-1.myhuaweicloud.com .
resource-path	Access path of an API for performing a specified operation. Obtain the path from the URI of an API. For example, the resource-path of the API used to obtain a user token is /v3/auth/tokens .

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, ?limit=10 indicates that a maximum of 10 data records will be displayed.

For example, to obtain an IAM token in the **UAE-Abu Dhabi** region, obtain the endpoint of IAM (**iam.ae-ad-1.myhuaweicloud.com**) for this region and the **resource-path** (**/v3/auth/tokens**) in the URI of the API used to **obtain a user token**. Then, construct the URI as follows:

```
https://iam.ae-ad-1.myhuaweicloud.com/v3/auth/tokens
```

Figure 3-1 Example URI



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.

Method	Description
PATCH	Requests the server to update partial content of a specified resource. If the resource does not exist, a new resource will be created.

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

POST https://iam.ae-ad-1.myhuaweicloud.com/v3/auth/tokens

Request Header

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

Common request header fields are as follows.

Table 3-3 Common request header fields

Parameter	Description	Mandatory	Example Value
Host	Specifies the server domain name and port number of the resources being requested. The value can be obtained from the URL of the service API. The value is in the format of <i>Hostname:Port number</i> . If the port number is not specified, the default port is used. The default port number for https is 443 .	No This field is mandatory for AK/SK authentication.	code.test.com or code.test.com:443
Content-Type	Specifies the type (or format) of the message body. The default value application/json 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

Parameter	Description	Mandatory	Example Value
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in 8.3 Obtaining a Project ID .	No	e9993fc787d94b6c886cbaa340f9c0f4
X-Auth-Token	Specifies the user token. It is a response to the API for obtaining a user token (only this API does not require authentication). After the request is processed, the value of X-Subject-Token in the response header is the token value.	No This field is mandatory for token authentication.	The following is part of an example token: MIIPAgYJKoZlhvcNAQcCo...ggg1BBIINPXsidG9rZ

 **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 [3.2 Authentication](#).

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

```
POST https://iam.ae-ad-1.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json
```

(Optional) Request Body

This part is optional. The body of a request is often sent in a structured format as specified in the **Content-Type** header field. The request body transfers content except the request header.

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

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

 NOTE

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

```
POST https://iam.ae-ad-1.myhuaweicloud.com/v3/auth/tokens
Content-Type: application/json
```

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

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

3.2 Authentication

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

- Token-based authentication: Requests are authenticated using a token.
- AK/SK-based authentication: Requests are authenticated by encrypting the request body using an AK/SK pair. AK/SK-based authentication is recommended because it is more secure than token-based authentication.

Token-based 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. When you call the API, set **auth.scope** in the request body to **project**.

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

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.ae-ad-1.myhuaweicloud.com/v3/auth/projects
Content-Type: application/json
X-Auth-Token: ABCDEFJ....
```

AK/SK-based Authentication

NOTE

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

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

NOTE

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

3.3 Response

Status Code

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

A status code is a group of digits, ranging from 1xx to 5xx. It indicates the status of a request. For more information, see [7.1 HTTP Status Codes of Load Balancers](#).

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

Response Header

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

[Figure 3-2](#) shows the response header fields for the API used to [obtain a user token](#). The **x-subject-token** header field is the desired user token. This token can then be used to authenticate the calling of other APIs.

Figure 3-2 Header fields of the response to the request for obtaining a user token

```
connection → keep-alive
content-type → application/json
date → Tue, 12 Feb 2019 06:52:13 GMT
server → Web Server
strict-transport-security → max-age=31536000; includeSubdomains;
transfer-encoding → chunked
via → proxy A
x-content-type-options → nosniff
x-download-options → noopen
x-frame-options → SAMEORIGIN
x-iam-trace-id → 218d45ab-d674-4995-af3a-2d0255ba41b5
x-subject-token → MIiYXQYJKoZIhvcNAQcCoIIYJTCCGEOCAQExDTALBglghkgBZQMEAgEwgharBgkqhkiG9w0B8wGgghacBIIWmHsidG9rZW4iOansiZXhwaXJlc19hdCI6IjIwMTktMDItMTNUMD
fj3KJs6YgKnpVNRbW2eZ5eb78SZOkqjACgkqlqO1wi4JIGzrpd1.8LGXK5bdfq4lqHCYb8P4NaYONYejeAgzIVeFYtLWT1GSO0zxKZmlQHqj82HBqHdglZO9fuEbL5dMhdavj+33wEI
xHRCe9I87o+k9-
j+CMZSEB7bUGd5Uj6eRASXI1jipPEGA270g1FruooL6jqglFkNPQuFSOU8+uSsttVwRtnfsC+qTp22Rkd5MCqFGQ8LcuUxC3a+9CMBnOintWW7oeRUUVhVpxk8pxiX1wTEboX-
RzT6MUbpvGw-oPNFYxjECKnoH3Hrozv0vN--n5d6Nbxg==
x-xss-protection → 1; mode=block;
```

(Optional) Response Body

The body of a response is often returned in structured format as specified in the **Content-Type** header field. The response body transfers content except the response header.

The following is part of the response body for the API used to [obtain a user token](#).

```
{
  "token": {
```



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

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

```
{  
  "error_msg": "The format of message is error",  
  "error_code": "AS.0001"  
}
```

In the response body, **error_code** is an error code, and **error_msg** provides information about the error.

4 Getting Started

4.1 Creating a Load Balancer

Scenarios

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

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

NOTE

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

Involved APIs

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

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

Procedure

1. Obtain the token by referring to [3.2 Authentication](#).
2. Send **POST https://ELB endpoint/v2.0/lbaas/loadbalancers**.
3. Add **X-Auth-Token** to the request header.
4. Specify the following parameters in the request body:

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

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

If the request fails, an error code and error information are returned. For details, see [7.1 HTTP Status Codes of Load Balancers](#).

5 Load Balancer APIs

5.1 Load Balancer

5.1.1 Creating a Load Balancer

Function

This API is used to create a private network load balancer. After the load balancer is created, its details, such as load balancer ID, IP address, and subnet ID, are returned.

To create a public network load balancer, you also need to call the API for assigning a floating IP address and associate this IP address to the port bound to the IP address of the private network load balancer.

URI

POST /v2.0/lbaas/loadbalancers

Request

Table 5-1 Parameter description

Parameter	Mandatory	Type	Description
loadbalancer	Yes	Object	Specifies the load balancer. For details, see Table 5-2 .

Table 5-2 loadbalancer parameter description

Parameter	Mandatory	Type	Description
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
tenant_id	No	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters. The value must be the same as the value of project_id in the token.
project_id	No	String	Specifies the ID of the project where the load balancer is used. The value must be the same as the value of project_id in the token.
vip_subnet_id	Yes	String	Specifies the ID of the subnet where the load balancer works. You can obtain the value by calling the API for querying subnets {VPC endpoint}/v2.0/subnets} using the GET method. The private IP address of the load balancer is in this subnet. Only IPv4 subnets are supported.
provider	No	String	Specifies the provider of the load balancer. The value can only be vlb .
vip_address	No	String	Specifies the private IP address of the load balancer. This IP address must be the one in the subnet specified by vip_subnet_id . If this parameter is not specified, an IP address is automatically assigned to the load balancer from the subnet specified by vip_subnet_id . The value contains a maximum of 64 characters.

Parameter	Mandatory	Type	Description
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is true .

Response

Table 5-3 Response parameters

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see Table 5-4 .

Table 5-4 loadbalancer parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.
tenant_id	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters.
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
vip_subnet_id	String	Specifies the ID of the subnet where the load balancer works.
vip_port_id	String	Specifies the ID of the port bound to the private IP address of the load balancer.
provider	String	Specifies the provider of the load balancer.

Parameter	Type	Description
vip_address	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.
listeners	Array	Lists the IDs of listeners added to the load balancer. For details, see Table 5-5 .
pools	Array	Lists the IDs of backend server groups associated with the load balancer. For details, see Table 5-6 .
operating_status	String	Specifies the operating status of the load balancer. The value can be ONLINE , OFFLINE , DEGRADED , DISABLED , or NO_MONITOR . This parameter is reserved. The default value is ONLINE . The value contains a maximum of 16 characters.
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be ACTIVE , PENDING_CREATE , or ERROR . This parameter is reserved. The default value is ACTIVE . The value contains a maximum of 16 characters.
admin_state_up	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is true .
tags	Array	Lists load balancer tags.
created_at	String	Specifies the time when the load balancer was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.

Parameter	Type	Description
updated_at	String	Specifies the time when the load balancer was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.

Table 5-5 listeners parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

Table 5-6 pools parameter description

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

Example Request

- Example request 1: Creating a private network load balancer
POST <https://{{Endpoint}}/v2.0/lbaas/loadbalancers>

```
{
  "loadbalancer": {
    "name": "loadbalancer1",
    "description": "simple lb",
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
    "vip_address": "192.168.0.100",
    "admin_state_up": true
  }
}
```

- Example request 2

(Bind an EIP to the port that has been bound to the load balancer's private IP address. For details about the parameters, see [Table 5-7](#).)

Table 5-7 Request parameters

Parameter	Mandatory	Type	Description
publicip	Yes	Object	Specifies the EIP. For details, see Table 5-8 .

Parameter	Mandatory	Type	Description
bandwidth	Yes	Object	Specifies the bandwidth. For details, see Table 5-9 .
enterprise_project_id	No	String	<ul style="list-style-type: none"> Specifies the enterprise project ID. The value is 0 or a string that contains a maximum of 36 characters in UUID format with hyphens (-). When assigning an EIP, you need to bind an enterprise project ID to the EIP. If this parameter is not specified, the default value is 0. <p>NOTE For more information about enterprise projects and how to obtain enterprise project IDs, see <i>Enterprise Management User Guide</i>.</p>

Table 5-8 publicip parameter description

Parameter	Mandatory	Type	Description
type	Yes	String	<ul style="list-style-type: none"> Specifies the EIP type. Note: <ul style="list-style-type: none"> The configured value must be supported by the system. publicip_id is an IPv4 port. If publicip_type is not specified, the default value is 5_bgp.

Parameter	Mandatory	Type	Description
ip_version	No	Integer	<ul style="list-style-type: none"> Specifies the EIP version. The value can be 4 and 6. 4 indicates an IPv4 address, and 6 indicates an IPv6 address. Note: <ul style="list-style-type: none"> The configured value must be supported by the system. If this parameter is left blank or is an empty string, an IPv4 address is assigned by default.
ip_address	No	String	<ul style="list-style-type: none"> Specifies the EIP to be assigned. The system automatically assigns an EIP if you do not specify it. The value must be a valid IPv4 address in the available IP address range.

Table 5-9 bandwidth parameter description

Parameter	Mandatory	Type	Description
name	Yes	String	<ul style="list-style-type: none"> Specifies the bandwidth name. The value is a string of 1 to 64 characters that can contain letters, digits, underscores (_), hyphens (-), and periods (.). This parameter is mandatory when share_type is set to PER. This parameter will be ignored when share_type is set to WHOLE with an ID specified.

Parameter	Mandatory	Type	Description
size	Yes	Integer	<ul style="list-style-type: none"> • Specifies the bandwidth (Mbit/s). • The value ranges from 1 to 300 by default. (The range may vary depending on the configuration in each region. You can see the bandwidth range of each region on the management console.) • This parameter is mandatory when share_type is set to PER. This parameter will be ignored when share_type is set to WHOLE with an ID specified. • The minimum unit for bandwidth adjustment varies depending on the bandwidth range. The details are as follows: <ul style="list-style-type: none"> – The minimum increment is 1 Mbit/s if the allowed bandwidth ranges from 0 to 300 Mbit/s (with 300 Mbit/s included). – The minimum increment is 50 Mbit/s if the allowed bandwidth ranges from 300 Mbit/s to 1000 Mbit/s. – The minimum increment is 500 Mbit/s if the allowed bandwidth is greater than 1000 Mbit/s.
id	No	String	<ul style="list-style-type: none"> • Specifies the bandwidth ID. You can specify an existing shared bandwidth when assigning an EIP. • The value can be the ID of the shared bandwidth whose type is set to WHOLE.

Parameter	Mandatory	Type	Description
share_type	Yes	String	<ul style="list-style-type: none"> Specifies the bandwidth type. The value is PER, indicating that the bandwidth is dedicated.
charge_mode	No	String	<ul style="list-style-type: none"> If the value is traffic, the bandwidth is billed by traffic.

– Step 1: Apply for an EIP.

POST https://{VPCEndpoint}/v1/8b7e35ad379141fc9df3e178bd64f55c/publicips

```
{
  "publicip": {
    "type": "5_bgp",
    "ip_version": 4
  },
  "bandwidth": {
    "name": "bandwidth123",
    "size": 10,
    "share_type": "PER"
  }
}
```

– Example response

```
{
  "publicip": {
    "id": "f588ccfa-8750-4d7c-bf5d-2ede24414706",
    "status": "PENDING_CREATE",
    "type": "5_bgp",
    "public_ip_address": "139.9.204.183",
    "tenant_id": "8b7e35ad379141fc9df3e178bd64f55c",
    "ip_version": 4,
    "create_time": "2019-06-29 06:45:32",
    "bandwidth_size": 1
  }
}
```

– Step 2: Bind the EIP. (The value of **public_id** is the same as that in the **Example response**, and the value of **port_id** is the same as that of **vip_port_id** in **Example response 1**.)

PUT /v1/8b7e35ad379141fc9df3e178bd64f55c/publicips/f588ccfa-8750-4d7c-bf5d-2ede24414706

```
{
  "publicip": {
    "port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7"
  }
}
```

– Example response

```
{
  "publicip": {
    "id": "f588ccfa-8750-4d7c-bf5d-2ede24414706",
    "status": "ACTIVE",
    "type": "5_bgp",
    "port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7",
    "public_ip_address": "139.9.204.183",
    "private_ip_address": "192.168.1.131",
    "tenant_id": "8b7e35ad379141fc9df3e178bd64f55c",
  }
}
```

```
"create_time": "2019-06-29 07:33:18",
"bandwidth_size": 1,
"ip_version": 4
}
}
```

- After the preceding steps are complete, the load balancer has the capability of accessing the public network. You can access the load balancer using 139.9.204.183, the value of parameter **public_ip_address**.

Example Response

- Example response 1

```
{
  "loadbalancer": {
    "description": "simple lb",
    "provisioning_status": "ACTIVE",
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "created_at": "2019-01-19T05:32:56",
    "admin_state_up": true,
    "updated_at": "2019-01-19T05:32:57",
    "id": "ea2843da-4026-49ec-8338-8fa015b067fc",
    "pools": [],
    "listeners": [],
    "vip_port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7",
    "operating_status": "ONLINE",
    "vip_address": "192.168.0.100",
    "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
    "provider": "vlb",
    "tags": [],
    "name": "loadbalancer1"
  }
}
```

- Example response 2

POST https://{Endpoint}/v2.0/lbaas/loadbalancers

```
{
  "loadbalancer": {
    "name": "loadbalancer1",
    "description": "simple lb",
    "tenant_id": "1867112d054b427e808cc6096d8193a1",
    "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
    "vip_address": "192.168.0.100",
    "admin_state_up": true
  }
}
```

After the preceding steps are complete, the load balancer has the capability of accessing the public network. You can access the load balancer using 139.9.204.183, the value of parameter **public_ip_address**.

Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

5.1.2 Querying Load Balancers

Function

This API is used to query load balancers and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

Constraints

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

URI

GET /v2.0/lbaas/loadbalancers

Request

Table 5-10 Parameter description

Parameter	Mandatory	Type	Description
marker	No	String	Specifies the ID of the load balancer from which pagination query starts, that is, the ID of the last load balancer on the previous page. This parameter must be used together with limit .
limit	No	Integer	Specifies the number of load balancers on each page.
page_reverse	No	Boolean	Specifies the page direction. The value can be true or false , and the default value is false . The last page in the list requested with page_reverse set to false will not contain the "next" link, and the last page in the list requested with page_reverse set to true will not contain the "previous" link. This parameter must be used together with limit .
tenant_id	No	String	Specifies the ID of the project where the load balancer is used.
id	No	String	Specifies the load balancer ID.
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.

Parameter	Mandatory	Type	Description
operating_status	No	String	Specifies the operating status of the load balancer. The value can be ONLINE , OFFLINE , DEGRADED , DISABLED , or NO_MONITOR . NOTE This parameter is reserved.
provisioning_status	No	String	Specifies the provisioning status of the load balancer. The value can be ACTIVE , PENDING_CREATE , or ERROR . NOTE This parameter is reserved.
vip_address	No	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.
vip_port_id	No	String	Specifies the ID of the port bound to the private IP address of the load balancer.
vip_subnet_id	No	String	Specifies the ID of the subnet where the load balancer works.
member_address	No	String	Specifies the IP address of the backend server associated with the load balancer.
member_device_id	No	String	Specifies the ID of the ECS corresponding to the backend server associated with the load balancer.
vpc_id	No	String	Specifies the ID of the VPC where the load balancer works.

Response

Table 5-11 Response parameters

Parameter	Type	Description
loadbalancers	Array	Lists the load balancers. For details, see Table 5-12 .

Parameter	Type	Description
loadbalancers_links	Array	Provides links to the previous or next page during pagination query, respectively. This parameter exists only in the response body of pagination query. For details, see Table 5-15 .

Table 5-12 loadbalancer parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.
tenant_id	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters.
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
vip_subnet_id	String	Specifies the ID of the subnet where the load balancer works.
vip_port_id	String	Specifies the ID of the port bound to the private IP address of the load balancer.
provider	String	Specifies the provider of the load balancer.
vip_address	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.
listeners	Array	Lists the IDs of listeners added to the load balancer. For details, see Table 5-5 .

Parameter	Type	Description
pools	Array	Lists the IDs of backend server groups associated with the load balancer. For details, see Table 5-6 .
operating_status	String	Specifies the operating status of the load balancer. The value can be ONLINE , OFFLINE , DEGRADED , DISABLED , or NO_MONITOR . This parameter is reserved. The default value is ONLINE . The value contains a maximum of 16 characters.
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be ACTIVE , PENDING_CREATE , or ERROR . This parameter is reserved. The default value is ACTIVE . The value contains a maximum of 16 characters.
admin_state_up	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is true .
tags	Array	Lists load balancer tags.
created_at	String	Specifies the time when the load balancer was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.
updated_at	String	Specifies the time when the load balancer was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.

Table 5-13 listeners parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

Table 5-14 pools parameter description

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

Table 5-15 loadbalancers_links parameter description

Parameter	Type	Description
href	String	Provides links to the previous or next page during pagination query, respectively.
rel	String	Specifies the prompt of the previous or next page. The value can be next or previous . The value next indicates the Hypertext Reference (href) containing the URL of the next page, and previous indicates the href containing the URL of the previous page.

Example Request

- Example request 1: Querying all load balancers
GET https://{Endpoint}/v2.0/lbaas/loadbalancers
- Example request 2: Querying load balancers by page (Each page contains one load balancer. The ID of the start load balancer is **165b6a38-5278-4569-b747-b2ee65ea84a4**. The load balancer after **165b6a38-5278-4569-b747-b2ee65ea84a4** is the queried load balancer.)
GET https://{Endpoint}/v2.0/lbaas/loadbalancers?limit=1&marker=165b6a38-5278-4569-b747-b2ee65ea84a4
- Example request 3: Querying the load balancer using the IP address of a backend server (192.168.0.191)
GET https://{Endpoint}/v2.0/lbaas/loadbalancers?member_address=192.168.0.181

Example Response

- Example response 1
{
 "loadbalancers": [

```
{
  "description": "simple lb",
  "admin_state_up": true,
  "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",
  "project_id": "1a3e005cf9ce40308c900bcb08e5320c",
  "provisioning_status": "ACTIVE",
  "vip_subnet_id": "5328f1e6-ce29-44f1-9493-b128a5653350",
  "listeners": [
    {
      "id": "45196943-2907-4369-87b1-c009b1d7ac35"
    }
  ],
  "vip_address": "10.0.0.2",
  "vip_port_id": "cbced4fe-6f6f-4fd6-9348-0c3d1219d6ca",
  "provider": "vlb",
  "pools": [
    {
      "id": "21d49cf7-4fd3-4cb6-8c48-b7fc6c259aab"
    }
  ],
  "id": "a9729389-6147-41a3-ab22-a24aed8692b2",
  "operating_status": "ONLINE",
  "tags": [],
  "name": "loadbalancer1",
  "created_at": "2018-07-25T01:54:13",
  "updated_at": "2018-07-25T01:54:14"
}
]
```

- Example response 2

```
{
  "loadbalancers": [
    {
      "description": "",
      "provisioning_status": "ACTIVE",
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "admin_state_up": true,
      "provider": "vlb",
      "pools": [
        {
          "id": "b13dba4c-a44c-4c40-8f6e-ce7a162b9f22"
        },
        {
          "id": "4b9e765f-82ee-4128-911b-0a2d9ebc74c7"
        }
      ],
      "listeners": [
        {
          "id": "21c41336-d0d3-4349-8641-6e82b4a4d097"
        }
      ],
      "vip_port_id": "44ac5d9b-b0c0-4810-9a9d-c4dbf541e47e",
      "operating_status": "ONLINE",
      "vip_address": "192.168.0.234",
      "vip_subnet_id": "9d60827e-0e5c-490a-8183-0b6ebf9084ca",
      "id": "e79a7dd6-3a38-429a-95f9-c7f78b346cbe",
      "tags": [],
      "name": "elb-robot",
      "created_at": "2018-07-25T01:54:13",
      "updated_at": "2018-07-25T01:54:14"
    }
  ],
  "loadbalancers_links": [
    {
      "href": "https://network.Region.dc1.domainname.com/v2.0/lbaas/loadbalancers?
limit=10&marker=e79a7dd6-3a38-429a-95f9-c7f78b346cbe&page_reverse=True",
      "rel": "previous"
    }
  ]
}
```

```

    ]
  }
}

```

- Example response 3


```

{
  "loadbalancers": [
    {
      "description": "",
      "provisioning_status": "ACTIVE",
      "tenant_id": "601240b9c5c94059b63d484c92cfe308",

      "created_at": "2018-11-29T13:55:20",
      "admin_state_up": true,
      "update_at": "2018-11-29T13:55:21",
      "id": "c1127125-64a9-4394-a08a-ef3be8f7ef9c",
      "pools": [
        {
          "id": "2f6895be-019b-4c82-9b53-c4a2ac009e20"
        }
      ],
      "listeners": [
        {
          "id": "5c63d176-444f-4c75-9cfe-bcb8a05a845c"
        }
      ],
      "vip_port_id": "434ac600-b779-4428-b7a7-830e047511f1",
      "operating_status": "ONLINE",
      "vip_address": "192.168.0.181",
      "vip_subnet_id": "9a303536-417c-45dc-a6db-1234b9e1c2b2",
      "provider": "vlb",
      "tags": [],
      "name": "elb-ftci"
    }
  ]
}

```

Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

5.1.3 Querying Details of a Load Balancer

Function

This API is used to query details about a load balancer using its ID. You can also query the EIP bound to the load balancer based on the value of **vip_port_id**.

URI

GET /v2.0/lbaas/loadbalancers/{loadbalancer_id}

Table 5-16 Parameter description

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

Request

None

Response

Table 5-17 Parameter description

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see Table 5-18 .

Table 5-18 loadbalancer parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.
tenant_id	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters.
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
vip_subnet_id	String	Specifies the ID of the subnet where the load balancer works.
vip_port_id	String	Specifies the ID of the port bound to the private IP address of the load balancer.
provider	String	Specifies the provider of the load balancer.
vip_address	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.

Parameter	Type	Description
listeners	Array	Lists the IDs of listeners added to the load balancer. For details, see Table 5-5 .
pools	Array	Lists the IDs of backend server groups associated with the load balancer. For details, see Table 5-6 .
operating_status	String	Specifies the operating status of the load balancer. The value can be ONLINE , OFFLINE , DEGRADED , DISABLED , or NO_MONITOR . This parameter is reserved. The default value is ONLINE . The value contains a maximum of 16 characters.
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be ACTIVE , PENDING_CREATE , or ERROR . This parameter is reserved. The default value is ACTIVE . The value contains a maximum of 16 characters.
admin_state_up	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is true .
tags	Array	Lists load balancer tags.
created_at	String	Specifies the time when the load balancer was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.
updated_at	String	Specifies the time when the load balancer was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.

Table 5-19 listeners parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

Table 5-20 pools parameter description

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

Example Request

- Example request 1: Querying details of a load balancer using its ID

Example Response

- Example response 1

```
{
  "loadbalancer": {
    "description": "",
    "admin_state_up": true,
    "tenant_id": "1867112d054b427e808cc6096d8193a1",

    "provisioning_status": "ACTIVE",
    "vip_subnet_id": "4f5e8efe-fbbe-405e-b48c-a41202ef697c",
    "listeners": [
      {
        "id": "09e64049-2ab0-4763-a8c5-f4207875dc3e"
      }
    ],
    "vip_address": "192.168.2.4",
    "vip_port_id": "c7157e7a-036a-42ca-8474-100be22e3727",
    "provider": "vlb",
    "pools": [
      {
        "id": "b7e53dbd-62ab-4505-a280-5c066078a5c9"
      }
    ],
    "id": "3d77894d-2ffe-4411-ac0a-0d57689779b8",
    "operating_status": "ONLINE",
    "tags": [],
    "name": "lb-2",
    "created_at": "2018-07-25T01:54:13",
    "updated_at": "2018-07-25T01:54:14"
  }
}
```

Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

5.1.4 Querying the Status Tree of a Load Balancer

Function

This API is used to query the status tree of a load balancer. You can use this API to query details about the associated listeners, backend server groups, backend servers, health checks, forwarding policies, and forwarding rules, helping you understand the topology of resources associated with the load balancer.

URI

GET /v2.0/lbaas/loadbalancers/{loadbalancer_id}/statuses

Table 5-21 Parameter description

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

Request

None

Response

Table 5-22 Response parameters

Parameter	Type	Description
statuses	Object	Specifies the status tree of a load balancer. For details, see Table 5-23 .

Table 5-23 statuses parameter description

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see Table 5-24 .

Table 5-24 loadbalancer parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.

Parameter	Type	Description
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
listeners	Array	Lists the listeners added to the load balancer. For details of this parameter, see Table 5-25 .
pools	Array	Lists the backend server groups associated with the load balancer. For details of this parameter, see Table 5-26 .
operating_status	String	<ul style="list-style-type: none"> Specifies the operating status of the load balancer. The value can be ONLINE, OFFLINE, DEGRADED, DISABLED, or NO_MONITOR. This parameter is reserved. The default value is ONLINE. The value contains a maximum of 16 characters.
provisioning_status	String	<ul style="list-style-type: none"> Specifies the provisioning status of the load balancer. The value can be ACTIVE, PENDING_CREATE, or ERROR. This parameter is reserved. The default value is ACTIVE. The value contains a maximum of 16 characters.

Table 5-25 listeners parameter description

Parameter	Type	Description
id	String	Specifies the listener ID.
name	String	Specifies the listener name.
l7policies	Array	Lists associated forwarding policies. For details of this parameter, see Table 5-29 .
pools	Array	Lists the backend server groups associated with the listener. For details of this parameter, see Table 5-26 .

Parameter	Type	Description
operating_status	String	<ul style="list-style-type: none"> Specifies the operating status of the listener. The value can be ONLINE, OFFLINE, DEGRADED, DISABLED, or NO_MONITOR. This parameter is reserved. The default value is ONLINE.
provisioning_status	String	<ul style="list-style-type: none"> Specifies the provisioning status of the listener. The value can be ACTIVE, PENDING_CREATE, or ERROR. This parameter is reserved. The default value is ACTIVE.

Table 5-26 pools parameter description

Parameter	Type	Description
id	String	Specifies the ID of the backend server group.
name	String	Specifies the name of the backend server group.
healthmonitor	Object	Provides health check details of the backend server group. For details of this parameter, see Table 5-27 .
members	Array	Lists the members contained in the backend server group. For details of this parameter, see Table 5-28 .
operating_status	String	<ul style="list-style-type: none"> Specifies the operating status of the backend server group. The value can be ONLINE, OFFLINE, DEGRADED, DISABLED, or NO_MONITOR. This parameter is reserved. The default value is ONLINE.
provisioning_statuses	String	<ul style="list-style-type: none"> Specifies the provisioning status of the backend server group. The value can be ACTIVE, PENDING_CREATE, or ERROR. This parameter is reserved. The default value is ACTIVE.

Table 5-27 healthmonitor parameter description

Parameter	Type	Description
id	String	Specifies the health check ID.
name	String	Specifies the health check name.
type	String	<ul style="list-style-type: none"> Specifies the health check protocol. The value can be UDP_CONNECT, TCP, or HTTP.
provisioning_status	String	<ul style="list-style-type: none"> Specifies the provisioning status of the health check. The value can be ACTIVE, PENDING_CREATE, or ERROR. This parameter is reserved. The default value is ACTIVE.

Table 5-28 members parameter description

Parameter	Type	Description
id	String	Specifies the backend server ID.
address	String	Specifies the private IP address of the backend server, for example, 192.168.3.11.
protocol_port	Integer	Specifies the port used by the backend server. The port number ranges from 0 to 65535.
operating_status	String	<ul style="list-style-type: none"> Specifies the health check result of the backend server. The value can be ONLINE, OFFLINE, DEGRADED, DISABLED, or NO_MONITOR. <ul style="list-style-type: none"> ONLINE: The backend server is healthy. OFFLINE: The backend server is unhealthy. DEGRADED: The backend server performance is deteriorating. DISABLED: The backend server does not exist. NO_MONITOR: The health check is disabled.
provisioning_status	String	<ul style="list-style-type: none"> Specifies the provisioning status of the backend server. The value can be ACTIVE, PENDING_CREATE, or ERROR. This parameter is reserved. The default value is ACTIVE.

Table 5-29 l7policies parameter description

Parameter	Type	Description
id	String	Specifies the forwarding policy ID.
name	String	Specifies the forwarding policy name.
rules	Array	Lists the forwarding rules of the forwarding policy. For details of this parameter, see Table 5-30 .
action	String	<ul style="list-style-type: none"> Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener. The value can be REDIRECT_TO_POOL or REDIRECT_TO_LISTENER. <ul style="list-style-type: none"> REDIRECT_TO_POOL: Requests are forwarded to another backend server group. REDIRECT_TO_LISTENER: Requests are redirected to an HTTPS listener.
provisioning_status	String	<ul style="list-style-type: none"> Specifies the provisioning status of the forwarding policy. The value can be ACTIVE, PENDING_CREATE, or ERROR. This parameter is reserved. The default value is ACTIVE.

Table 5-30 rules parameter description

Parameter	Type	Description
id	String	Specifies the forwarding rule ID.
type	String	<ul style="list-style-type: none"> Specifies the match type of a forwarding rule. The value can be PATH or HOST_NAME. <ul style="list-style-type: none"> PATH: matches the path in the request. HOST_NAME: matches the domain name in the request.
provisioning_status	String	<ul style="list-style-type: none"> Specifies the provisioning status of the forwarding rule. The value can be ACTIVE, PENDING_CREATE, or ERROR. This parameter is reserved. The default value is ACTIVE.

Example Request

- Example request
GET [https://\[Endpoint\]/v2.0/lbaas/loadbalancers/38278031-cfca-44be-81be-a412f618773b/statuses](https://[Endpoint]/v2.0/lbaas/loadbalancers/38278031-cfca-44be-81be-a412f618773b/statuses)

Example Response

- Example response

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

```

    "operating_status": "ONLINE"
  }
}

```

Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

5.1.5 Updating a Load Balancer

Function

This API is used to update the name or description of a load balancer.

URI

PUT /v2.0/lbaas/loadbalancers/{loadbalancer_id}

Table 5-31 Parameter description

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

Request

Table 5-32 Parameter description

Parameter	Mandatory	Type	Description
loadbalancer	Yes	Object	Specifies the load balancer. For details, see Table 5-33 .

Table 5-33 loadbalancer parameter description

Parameter	Mandatory	Type	Description
name	No	String	Specifies the load balancer name. The value contains a maximum of 255 characters.

Parameter	Mandatory	Type	Description
description	No	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
admin_state_up	No	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is true .

Response

Table 5-34 Response parameters

Parameter	Type	Description
loadbalancer	Object	Specifies the load balancer. For details, see Table 5-35 .

Table 5-35 loadbalancer parameter description

Parameter	Type	Description
id	String	Specifies the load balancer ID.
tenant_id	String	Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters.
name	String	Specifies the load balancer name. The value contains a maximum of 255 characters.
description	String	Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.
vip_subnet_id	String	Specifies the ID of the subnet where the load balancer works.

Parameter	Type	Description
vip_port_id	String	Specifies the ID of the port bound to the private IP address of the load balancer.
provider	String	Specifies the provider of the load balancer.
vip_address	String	Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.
listeners	Array	Lists the IDs of listeners added to the load balancer. For details, see Table 5-5 .
pools	Array	Lists the IDs of backend server groups associated with the load balancer. For details, see Table 5-6 .
operating_status	String	Specifies the operating status of the load balancer. The value can be ONLINE , OFFLINE , DEGRADED , DISABLED , or NO_MONITOR . This parameter is reserved. The default value is ONLINE . The value contains a maximum of 16 characters.
provisioning_status	String	Specifies the provisioning status of the load balancer. The value can be ACTIVE , PENDING_CREATE , or ERROR . This parameter is reserved. The default value is ACTIVE . The value contains a maximum of 16 characters.
admin_state_up	Boolean	Specifies the administrative status of the load balancer. This parameter is reserved. The default value is true .
tags	Array	Lists load balancer tags.

Parameter	Type	Description
created_at	String	Specifies the time when the load balancer was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.
updated_at	String	Specifies the time when the load balancer was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. The value contains a maximum of 19 characters.

Table 5-36 listeners parameter description

Parameter	Type	Description
id	String	Specifies the ID of the associated listener.

Table 5-37 pools parameter description

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

Example Request

- Example request: Modifying the load balancer name and description
PUT <https://{Endpoint}/v2.0/lbaas/loadbalancers/1e11b74e-30b7-4b78-b09b-84aec4a04487>

```
{
  "loadbalancer": {
    "name": "lb_update_test",
    "description": "lb update test"
  }
}
```

Example Response

- Example response
- ```
{
 "loadbalancer": {
 "description": "simple lb2",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "provisioning_status": "ACTIVE",
 "vip_subnet_id": "823d5866-6e30-45c2-9b1a-a1ebc3757fdb",
 }
}
```

```
"listeners": [
 {
 "id": "37ffe679-08ef-436e-b6bd-cf66fb4c3de2"
 }
],
"vip_address": "192.172.1.68",
"vip_port_id": "f42e3019-67f7-4d2a-8d1c-af49e7c22fa6",
"tags": [],
"provider": "vlb",
"pools": [
 {
 "id": "75c4f2d4-a213-4408-9fa8-d64708e8d1df"
 }
],
"id": "c32a9f9a-0cc6-4f38-bb9c-cde79a533c19",
"operating_status": "ONLINE",
"name": "loadbalancer-test2",
"created_at": "2018-07-25T01:54:13",
"updated_at": "2018-07-25T01:54:14"
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.1.6 Deleting a Load Balancer

### Function

This API is used to delete a specific load balancer.

### Constraints

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

### URI

DELETE /v2.0/lbaas/loadbalancers/{loadbalancer\_id}

**Table 5-38** Parameter description

| Parameter       | Mandatory | Type   | Description                     |
|-----------------|-----------|--------|---------------------------------|
| loadbalancer_id | Yes       | String | Specifies the load balancer ID. |

### Request

None

### Response

None

## Example Request

Example request: Deleting a load balancer

DELETE https://{endpoint}/v2.0/lbaas/loadbalancers/90f7c765-0bc9-47c4-8513-4cc0c264c8f8

## Example Response

Example response

None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 5.2 Listener

## 5.2.1 Adding a Listener

### Function

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

### URI

POST /v2.0/lbaas/listeners

### Request

**Table 5-39** Parameter description

| Parameter | Mandatory | Type   | Description                                                           |
|-----------|-----------|--------|-----------------------------------------------------------------------|
| listener  | Yes       | Object | Specifies the listener. For details, see <a href="#">Table 5-40</a> . |

**Table 5-40** listener parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                          |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id | No        | String | Specifies the ID of the project where the listener is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters. |

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                 |
|------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                             |
| description      | No        | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                   |
| protocol         | Yes       | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                                                                                                                       |
| protocol_port    | Yes       | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.<br><b>NOTE</b><br>If the protocol used by the listener is UDP, the port number cannot be 4789.                                                                                                                                                                          |
| loadbalancer_id  | Yes       | String  | Specifies the ID of the associated load balancer.                                                                                                                                                                                                                                                                                                           |
| connection_limit | No        | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                                                        |
| admin_state_up   | No        | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. The value can only be <b>true</b> .                                                                                                                                                                                                                                     |
| http2_enable     | No        | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> The default value is <b>false</b> .<br>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |

| Parameter                 | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_pool_id           | No        | String | <p>Specifies the ID of the associated backend server group.</p> <p>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p> <p>This parameter has the following constraints:</p> <ul style="list-style-type: none"> <li>• Its value cannot be the ID of any backend server group of other listeners.</li> <li>• Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.</li> </ul> <p>The relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| default_tls_container_ref | No        | String | <p>Specifies the ID of the server certificate used by the listener.</p> <p>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p> <p>The default value is <b>null</b> when <b>protocol</b> is not set to <b>TERMINATED_HTTPS</b>.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| Parameter                   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                             |
|-----------------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client_ca_tls_container_ref | No        | String | <p>Specifies the ID of the CA certificate used by the listener.</p> <p>The default value is <b>null</b>.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p>                                                         |
| sni_container_refs          | No        | Array  | <p>Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.</p> <p>If the parameter value is an empty list, the SNI feature is disabled.</p> <p>The default value is <b>[]</b>.</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p> |

**Table 5-41** `tls_ciphers_policy` parameter description

| Security Policy | TLS Version                 | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLSv1.2<br>TLSv1.1<br>TLSv1 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |
| tls-1-0         | TLSv1.2<br>TLSv1.1<br>TLSv1 | 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-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Security Policy | TLS Version        | Cipher Suite                                                                                                                                                                                                                                                                            |
|-----------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-1         | TLSv1.2<br>TLSv1.1 | SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                    |
| tls-1-2         | TLSv1.2            | SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                    |
| tls-1-2-strict  | TLSv1.2            | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384 |

## Response

**Table 5-42** Response parameters

| Parameter | Type   | Description                                                           |
|-----------|--------|-----------------------------------------------------------------------|
| listener  | Object | Specifies the listener. For details, see <a href="#">Table 5-43</a> . |

**Table 5-43** listeners parameter description

| Parameter     | Type    | Description                                                                                                                        |
|---------------|---------|------------------------------------------------------------------------------------------------------------------------------------|
| id            | String  | Specifies the listener ID.                                                                                                         |
| tenant_id     | String  | Specifies the ID of the project where the listener is used.                                                                        |
| name          | String  | Specifies the listener name.                                                                                                       |
| description   | String  | Provides supplementary information about the listener.                                                                             |
| protocol      | String  | Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> . |
| protocol_port | Integer | Specifies the port used by the listener. The port number ranges from 1 to 65535.                                                   |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                       |
|-----------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| loadbalancers               | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 5-44</a> .                                                                                                                                                                                                                   |
| connection_limit            | Integer | Specifies the maximum number of connections. The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections. This parameter is reserved.                                                                    |
| admin_status_up             | Boolean | Specifies the administrative status of the listener. This parameter is reserved. The value can only be <b>true</b> .                                                                                                                                                                                              |
| http2_enable                | Boolean | Specifies whether to use HTTP/2. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id             | String  | Specifies the ID of the associated backend server group. If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                          |
| default_tls_container_ref   | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">5.9 Certificate</a> . This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                                                                          |
| client_ca_tls_container_ref | String  | Specifies the ID of the CA certificate used by the listener. For details, see <a href="#">5.9 Certificate</a> .                                                                                                                                                                                                   |
| sni_container_refs          | Array   | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener. If the parameter value is an empty list, the SNI feature is disabled.                                                                                                                                            |
| tags                        | Array   | Tags the listener.                                                                                                                                                                                                                                                                                                |
| created_at                  | String  | Specifies the time when the listener was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                                                           |
| updated_at                  | String  | Specifies the time when the listener was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                                                           |



**Table 5-44 loadbalancers** parameter description

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

## Example Request

- Example request 1: Adding a TCP listener

POST https://{Endpoint}/v2.0/lbaas/listeners

```
{
 "listener": {
 "protocol_port": 80,
 "protocol": "TCP",
 "loadbalancer_id": "0416b6f1-877f-4a51-987e-978b3f084253",
 "name": "listener-test",
 "admin_state_up": true,
 }
}
```

- Example request 2: Adding an HTTPS listener

POST https://{Endpoint}/v2.0/lbaas/listeners

```
{
 "listener": {
 "protocol_port": 25,
 "protocol": "TERMINATED_HTTPS",
 "default_tls_container_ref": "02dcd56799e045bf8b131533cc911dd6",
 "loadbalancer_id": "0416b6f1-877f-4a51-987e-978b3f084253",
 "name": "listener-test",
 "admin_state_up": true
 }
}
```

## Example Response

- Example response 1

```
{
 "listener": {
 "protocol_port": 80,
 "protocol": "TCP",
 "description": "",
 "client_ca_tls_container_ref": null,
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "0416b6f1-877f-4a51-987e-978b3f084253"
 }
],
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "sni_container_refs": [],
 "connection_limit": -1,
 "default_pool_id": null,
 "tags": [],
 "id": "b7f32b52-6f17-4b16-9ec8-063d71b653ce",
 "name": "listener-test",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
 }
}
```

- Example response 2

```
{
 "listener": {
 "protocol_port": 25,
 "protocol": "TERMINATED_HTTPS",
 "description": "",
 "default_tls_container_ref": "02dcd56799e045bf8b131533cc911dd6",
 "sni_container_refs": [],
 "loadbalancers": [
 {
 "id": "0416b6f1-877f-4a51-987e-978b3f084253"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "created_at": "2019-01-21T12:38:31",
 "client_ca_tls_container_ref": null,
 "connection_limit": -1,
 "updated_at": "2019-01-21T12:38:31",
 "http2_enable": false,
 "admin_state_up": true,
 "default_pool_id": null,
 "id": "b56634cd-5ba8-460e-b5a2-6de5ba8eaf60",
 "tags": [],
 "name": "listener-test"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.2.2 Querying Listeners

### Function

This API is used to query the listeners and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

You can query listeners using information such as listener ID, protocol used by the listener, port used by the listener, or backend server private IP address.

### Constraints

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

### URI

GET /v2.0/lbaas/listeners

## Request

**Table 5-45** Parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker           | No        | String  | Specifies the ID of the listener from which pagination query starts, that is, the ID of the last listener on the previous page.<br>This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                                   |
| limit            | No        | Integer | Specifies the number of listeners on each page.                                                                                                                                                                                                                                                                                                                                                                               |
| page_reverse     | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> . |
| id               | No        | String  | Specifies the listener ID.                                                                                                                                                                                                                                                                                                                                                                                                    |
| tenant_id        | No        | String  | Specifies the ID of the project where the listener is used.                                                                                                                                                                                                                                                                                                                                                                   |
| project_id       | No        | String  | Specifies the ID of the project where the listener is used.                                                                                                                                                                                                                                                                                                                                                                   |
| name             | No        | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                               |
| description      | No        | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                     |
| loadbalancer_id  | No        | String  | Specifies the ID of the associated load balancer.                                                                                                                                                                                                                                                                                                                                                                             |
| connection_limit | No        | Integer | Specifies the maximum number of connections.                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter                   | Mandatory | Type    | Description                                                                                                                                                                                                      |
|-----------------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up              | No        | Boolean | Specifies the administrative status of the listener.                                                                                                                                                             |
| default_pool_id             | No        | String  | Specifies the ID of the associated backend server group.                                                                                                                                                         |
| http2_enable                | No        | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: HTTP/2 is used.</li> <li>• <b>false</b>: HTTP/2 is not used.</li> </ul> |
| default_tls_container_ref   | No        | String  | Specifies the ID of the server certificate used by the listener.<br>The value contains a maximum of 128 characters.                                                                                              |
| client_ca_tls_container_ref | No        | String  | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.                                                                                                  |
| protocol                    | No        | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                            |
| protocol_port               | No        | Integer | Specifies the port used by the listener.                                                                                                                                                                         |
| tls_container_id            | No        | String  | Queries the listener associated with the certificate.                                                                                                                                                            |
| sni_container_refs          | No        | String  | Queries the listener associated with the SNI certificate.                                                                                                                                                        |

**Table 5-46** `tls_ciphers_policy` parameter description

| Security Policy | TLS Version                 | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLSv1.2<br>TLSv1.1<br>TLSv1 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |
| tls-1-0         | TLSv1.2<br>TLSv1.1<br>TLSv1 | 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:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                          |
| tls-1-1         | TLSv1.2<br>TLSv1.1          | ECDHE-RSA-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:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| tls-1-2         | TLSv1.2                     | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| tls-1-2-strict  | TLSv1.2                     | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384                                                                                                                                                                                                                                                                                                                                                                                                            |

## Response

**Table 5-47** Parameter description

| Parameter       | Type  | Description                                                                                                                                                                                           |
|-----------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| listeners       | Array | Lists the listeners. For details, see <a href="#">Table 5-48</a> .                                                                                                                                    |
| listeners_links | Array | Provides links to the previous or next page during pagination query, respectively. This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 5-51</a> . |

**Table 5-48** listeners parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                                      |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the listener ID.                                                                                                                                                                                                                                       |
| tenant_id        | String  | Specifies the ID of the project where the listener is used. The value contains a maximum of 255 characters.                                                                                                                                                      |
| name             | String  | Specifies the listener name. The value contains a maximum of 255 characters.                                                                                                                                                                                     |
| description      | String  | Provides supplementary information about the listener. The value contains a maximum of 255 characters.                                                                                                                                                           |
| protocol         | String  | Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                               |
| protocol_port    | Integer | Specifies the port used by the listener. The port number ranges from 1 to 65535.                                                                                                                                                                                 |
| loadbalancers    | Array   | Specifies the ID of the associated load balancer.                                                                                                                                                                                                                |
| connection_limit | Integer | Specifies the maximum number of connections. The value ranges from <b>-1</b> to <b>2147483647</b> .<br><b>NOTE</b><br>This parameter is reserved. The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections. |
| admin_state_up   | Boolean | Specifies the administrative status of the listener.<br><b>NOTE</b><br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                                                |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| http2_enable                | Boolean | <p>Specifies whether to use HTTP/2.<br/>The value can be <b>true</b> or <b>false</b>.</p> <ul style="list-style-type: none"> <li>• <b>true</b>: HTTP/2 will be used.</li> <li>• <b>false</b>: HTTP/2 will not be used.</li> </ul> <p><b>NOTE</b><br/>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                                                                                                                      |
| keepalive_timeout           | Integer | <p>Specifies the idle timeout duration in the unit of second.<br/>The value ranges from <b>1</b> to <b>300</b>. The default value is <b>15</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| client_timeout              | Integer | <p>Specifies the request timeout duration in the unit of second.<br/>The value ranges from <b>1</b> to <b>60</b>. The default value is <b>60</b>.<br/>This parameter is valid only when <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>. In other cases, the request body does not contain this parameter. Otherwise, an error is reported.<br/>When <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>, if the request body does not contain this parameter or the value of this parameter is <b>null</b>, the default value is used.</p>  |
| member_timeout              | Integer | <p>Specifies the response timeout duration in the unit of second.<br/>The value ranges from <b>1</b> to <b>60</b>. The default value is <b>60</b>.<br/>This parameter is valid only when <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>. In other cases, the request body does not contain this parameter. Otherwise, an error is reported.<br/>When <b>protocol</b> is set to <b>HTTP</b> or <b>HTTPS</b>, if the request body does not contain this parameter or the value of this parameter is <b>null</b>, the default value is used.</p> |
| default_pool_id             | String  | <p>Specifies the ID of the associated backend server group.<br/><b>NOTE</b><br/>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p>                                                                                                                                                                                                                                                   |
| default_tls_container_ref   | String  | <p>Specifies the ID of the server certificate used by the listener.<br/>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.<br/>The value contains a maximum of 128 characters.</p>                                                                                                                                                                                                                                                                                                                                  |
| client_ca_tls_container_ref | String  | <p>Specifies the ID of the CA certificate used by the listener.<br/>The value contains a maximum of 128 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Parameter          | Type   | Description                                                                                                                                               |
|--------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| sni_container_refs | Array  | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.                                                          |
| tags               | Array  | Tags the listener.                                                                                                                                        |
| created_at         | String | Specifies the time when the listener was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters. |
| updated_at         | String | Specifies the time when the listener was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters. |
| listeners_links    | Array  | Provides links to the previous or next page during pagination query, respectively. This parameter exists only in the response body of pagination query.   |

**Table 5-49 loadbalancers** parameter description

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



**Table 5-50** `tls_ciphers_policy` parameter description

| Security Policy | TLS Version                 | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLSv1.2<br>TLSv1.1<br>TLSv1 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDHE-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |
| tls-1-0         | TLSv1.2<br>TLSv1.1<br>TLSv1 | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                              |
| tls-1-1         | TLSv1.2<br>TLSv1.1          | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                                                                                                          |
| tls-1-2         | TLSv1.2                     | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| tls-1-2-strict  | TLSv1.2                     | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384                                                                                                                                                                                                                                                                                                                                                                                                            |

**Table 5-51** `listeners_links` parameter description

| Parameter | Type   | Description                                                                        |
|-----------|--------|------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively. |

| Parameter | Type   | Description                                                                                                                                                                                                                                                        |
|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rel       | String | Specifies the prompt of the previous or next page. The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

## Example Request

- Example request 1: Querying all listeners  
GET https://{Endpoint}/v2.0/lbaas/listeners?limit=2
- Request example 2: Querying UDP listeners  
GET https://{Endpoint}/v2.0/lbaas/listeners?protocol=UDP

## Example Response

- Example response 1
 

```
{
 "listeners": [
 {
 "client_ca_tls_container_ref": null,
 "protocol": "TCP",
 "description": "",
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "bc7ba445-035a-4464-a1a3-a62cf4a14116"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "sni_container_refs": [],
 "connection_limit": -1,
 "protocol_port": 80,
 "default_pool_id": "ed75f16e-fcc6-403e-a3fb-4eae82005eab",
 "id": "75045172-70e9-480d-9443-b8b6459948f7",
 "tags": [],
 "name": "listener-cb2n",

 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
 },
 {
 "client_ca_tls_container_ref": null,
 "protocol": "TCP",
 "description": "",
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "165b6a38-5278-4569-b747-b2ee65ea84a4"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "sni_container_refs": [],
 "connection_limit": -1,
```

```
 "protocol_port": 8080,
 "default_pool_id": null,
 "id": "dada0003-7b0e-4de8-a4e1-1e937be2ba14",
 "tags": [],
 "name": "lsnr_name_mod",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
 },
],
 "listeners_links": [
 {
 "href": "https://{Endpoint}/v2.0/lbaas/listeners?limit=2&marker=042cc6a5-
e385-4e39-83de-4dde1f801ccb",
 "rel": "next"
 },
 {
 "href": "https://{Endpoint}/v2.0/lbaas/listeners?limit=2&marker=025fcaa9-0159-4a0d-8583-
d97fa77d9972&page_reverse=True",
 "rel": "previous"
 }
]
}
```

- Example response 2

```
{
 "listeners": [
 {
 "protocol_port": 64809,
 "protocol": "UDP",
 "description": "",
 "default_tls_container_ref": null,
 "sni_container_refs": [],
 "loadbalancers": [
 {
 "id": "c1127125-64a9-4394-a08a-ef3be8f7ef9c"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "created_at": "2018-11-29T13:56:21",
 "client_ca_tls_container_ref": null,
 "connection_limit": -1,
 "updated_at": "2018-11-29T13:56:22",
 "http2_enable": false,

 "admin_state_up": true,
 "default_pool_id": "2f6895be-019b-4c82-9b53-c4a2ac009e20",
 "id": "5c63d176-444f-4c75-9cfe-bcb8a05a845c",
 "tags": [],
 "name": "listener-tvp8"
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.2.3 Querying Details of a Listener

### Function

This API is used to query details about a listener using its ID.

## URI

GET /v2.0/lbaas/listeners/{listener\_id}

**Table 5-52** Parameter description

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

## Request

None

## Response

**Table 5-53** Response parameters

| Parameter | Type   | Description                                                        |
|-----------|--------|--------------------------------------------------------------------|
| listener  | Object | Lists the listeners. For details, see <a href="#">Table 5-54</a> . |

**Table 5-54** listeners parameter description

| Parameter     | Type    | Description                                                                                                                           |
|---------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id            | String  | Specifies the listener ID.                                                                                                            |
| tenant_id     | String  | Specifies the ID of the project where the listener is used.                                                                           |
| name          | String  | Specifies the listener name.                                                                                                          |
| description   | String  | Provides supplementary information about the listener.                                                                                |
| protocol      | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> . |
| protocol_port | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.                                                   |
| loadbalancers | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 5-44</a> .                                       |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                          |
|-----------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connection_limit            | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                 |
| admin_status_up             | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. The value can only be <b>true</b> .                                                                                                                                                                                              |
| http2_enable                | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id             | String  | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                          |
| default_tls_container_ref   | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">5.9 Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                                                                          |
| client_ca_tls_container_ref | String  | Specifies the ID of the CA certificate used by the listener. For details, see <a href="#">5.9 Certificate</a> .                                                                                                                                                                                                      |
| sni_container_refs          | Array   | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.                                                                                                                                            |
| tags                        | Array   | Tags the listener.                                                                                                                                                                                                                                                                                                   |
| created_at                  | String  | Specifies the time when the listener was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                                                              |
| updated_at                  | String  | Specifies the time when the listener was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                                                              |

**Table 5-55 loadbalancers** parameter description

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

## Example Request

- Example request: Viewing details of a listener  
GET https://{Endpoint}/v2.0/lbaas/listeners/09e64049-2ab0-4763-a8c5-f4207875dc3e

## Example Response

- Example response

```
{
 "listener": {
 "protocol_port": 8000,
 "protocol": "TCP",
 "description": "",
 "client_ca_tls_container_ref": null,
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "3d77894d-2ffe-4411-ac0a-0d57689779b8"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "sni_container_refs": [],
 "connection_limit": -1,
 "default_pool_id": "b7e53dbd-62ab-4505-a280-5c066078a5c9",
 "id": "09e64049-2ab0-4763-a8c5-f4207875dc3e",
 "tags": [],
 "name": "listener-2",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.2.4 Updating a Listener

### Function

This API is used to update a listener, such as listener name, description, associated backend server groups, and server certificates.

### Constraints

- If the provisioning status of the associated load balancer is not **ACTIVE**, the listener cannot be updated.
- Only the administrator can specify **connection\_limit**.

- The **default\_pool\_id** parameter has the following constraints:
  - Its value cannot be the ID of any backend server group of other listeners.
  - Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.
- The relationships between the protocol used by the listener and the protocol of the backend server group are as follows:
  - When the protocol used by the listener is **TCP**, the protocol of the backend server group must be **TCP**.
  - When the protocol used by the listener is **UDP**, the protocol of the backend server group must be **UDP**.
  - When the protocol used by the listener is **HTTP** or **TERMINATED\_HTTPS**, the protocol of the backend server group must be **HTTP**.

## URI

PUT /v2.0/lbaas/listeners/{listener\_id}

**Table 5-56** Parameter description

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

## Request

**Table 5-57** Parameter description

| Parameter | Mandatory | Type   | Description                                                           |
|-----------|-----------|--------|-----------------------------------------------------------------------|
| listener  | Yes       | Object | Specifies the listener. For details, see <a href="#">Table 5-58</a> . |

**Table 5-58** listener parameter description

| Parameter   | Mandatory | Type   | Description                                                                                               |
|-------------|-----------|--------|-----------------------------------------------------------------------------------------------------------|
| name        | No        | String | Specifies the listener name.<br>The value contains a maximum of 255 characters.                           |
| description | No        | String | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters. |

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                              |
|------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connection_limit | No        | Integer | <p>Specifies the maximum number of connections.</p> <p>The value ranges from <b>-1</b> to <b>2147483647</b>.</p> <p>This parameter is reserved. Only the administrator can specify the maximum number of connections.</p>                                                                                                                |
| http2_enable     | No        | Boolean | <p>Specifies whether to use HTTP/2.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <ul style="list-style-type: none"> <li>• <b>true</b>: HTTP/2 is used.</li> <li>• <b>false</b>: HTTP/2 is not used.</li> </ul> <p>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b>.</p> |



| Parameter                 | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_pool_id           | No        | String  | <p>Specifies the ID of the associated backend server group.</p> <p>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p> <p>This parameter has the following constraints:</p> <ul style="list-style-type: none"> <li>• Its value cannot be the ID of any backend server group of other listeners.</li> <li>• Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.</li> </ul> <p>The relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| admin_state_up            | No        | Boolean | <p>Specifies the administrative status of the listener.</p> <p>This parameter is reserved. The value can only be <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| default_tls_container_ref | No        | String  | <p>Specifies the ID of the server certificate used by the listener.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Parameter                   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                       |
|-----------------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client_ca_tls_container_ref | No        | String | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.<br><b>NOTE</b><br>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                           |
| sni_container_refs          | No        | Array  | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.<br><b>NOTE</b><br>This parameter is valid only when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> . |

**Table 5-59** `tls_ciphers_policy` parameter description

| Security Policy | TLS Version                 | Cipher Suite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-0-inherit | TLSv1.2<br>TLSv1.1<br>TLSv1 | 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:ECDSA-AES256-SHA384:ECDSA-AES128-SHA:ECDSA-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDSA-RSA-AES256-SHA:ECDSA-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDSA-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |
| tls-1-0         | TLSv1.2<br>TLSv1.1<br>TLSv1 | 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:ECDSA-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDSA-AES256-SHA384:ECDSA-AES128-SHA:ECDSA-RSA-AES128-SHA:DHE-RSA-AES128-SHA:ECDSA-RSA-AES256-SHA:ECDSA-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA:DHE-DSS-AES128-SHA:CAMELLIA128-SHA:EDH-RSA-DES-CBC3-SHA:DES-CBC3-SHA:ECDSA-RSA-RC4-SHA:RC4-SHA:DHE-RSA-AES256-SHA:DHE-DSS-AES256-SHA:DHE-RSA-CAMELLIA256-SHA:DHE-DSS-CAMELLIA256-SHA:CAMELLIA256-SHA:EDH-DSS-DES-CBC3-SHA:DHE-RSA-CAMELLIA128-SHA:DHE-DSS-CAMELLIA128-SHA |
| tls-1-1         | TLSv1.2<br>TLSv1.1          | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDSA-AES256-GCM-SHA384:ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDSA-AES128-SHA256:ECDSA-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDSA-AES256-SHA384:ECDSA-                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Security Policy | TLS Version | Cipher Suite                                                                                                                                                                                                                                                                            |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tls-1-2         | TLSv1.2     | RSA-AES256-SHA384:ECDHE-ECDSA-AES128-SHA:ECDHE-RSA-AES128-SHA:ECDHE-RSA-AES256-SHA:ECDHE-ECDSA-AES256-SHA:AES128-SHA:AES256-SHA                                                                                                                                                         |
| tls-1-2-strict  | TLSv1.2     | ECDHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES128-GCM-SHA256:ECDHE-ECDSA-AES256-GCM-SHA384:ECDHE-ECDSA-AES128-GCM-SHA256:AES128-GCM-SHA256:AES256-GCM-SHA384:ECDHE-ECDSA-AES128-SHA256:ECDHE-RSA-AES128-SHA256:AES128-SHA256:AES256-SHA256:ECDHE-ECDSA-AES256-SHA384:ECDHE-RSA-AES256-SHA384 |

## Response

**Table 5-60** Response parameters

| Parameter | Type   | Description                                                           |
|-----------|--------|-----------------------------------------------------------------------|
| listener  | Object | Specifies the listener. For details, see <a href="#">Table 5-61</a> . |

**Table 5-61** listeners parameter description

| Parameter     | Type    | Description                                                                                                                        |
|---------------|---------|------------------------------------------------------------------------------------------------------------------------------------|
| id            | String  | Specifies the listener ID.                                                                                                         |
| tenant_id     | String  | Specifies the ID of the project where the listener is used.                                                                        |
| name          | String  | Specifies the listener name.                                                                                                       |
| description   | String  | Provides supplementary information about the listener.                                                                             |
| protocol      | String  | Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> . |
| protocol_port | Integer | Specifies the port used by the listener. The port number ranges from 1 to 65535.                                                   |
| loadbalancers | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 5-44</a> .                                    |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                       |
|-----------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| connection_limit            | Integer | Specifies the maximum number of connections. The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections. This parameter is reserved.                                                                    |
| admin_status_up             | Boolean | Specifies the administrative status of the listener. This parameter is reserved. The value can only be <b>true</b> .                                                                                                                                                                                              |
| http2_enable                | Boolean | Specifies whether to use HTTP/2. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id             | String  | Specifies the ID of the associated backend server group. If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                          |
| default_tls_container_ref   | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">5.9 Certificate</a> . This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .                                                                                                          |
| client_ca_tls_container_ref | String  | Specifies the ID of the CA certificate used by the listener. For details, see <a href="#">5.9 Certificate</a> .                                                                                                                                                                                                   |
| sni_container_refs          | Array   | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener. If the parameter value is an empty list, the SNI feature is disabled.                                                                                                                                            |
| tags                        | Array   | Tags the listener.                                                                                                                                                                                                                                                                                                |
| created_at                  | String  | Specifies the time when the listener was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                                                           |
| updated_at                  | String  | Specifies the time when the listener was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                                                           |

**Table 5-62 loadbalancers** parameter description

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

## Example Request

- Example request: Updating a listener

```
PUT https://{Endpoint}/v2.0/lbaas/listeners/f622c150-72f5-4263-a47a-e5003c652aa3
```

```
{
 "listener": {
 "description": "my listener",
 "name": "listener-jy-test2",
 "default_pool_id": "c61310de-9a06-4f0c-850c-6f4797b9984c",
 "default_tls_container_ref": "23b58a961a4d4c95be585e98046e657a",
 "client_ca_tls_container_ref": "417a0976969f497db8cbb083bff343ba"
 }
}
```

## Example Response

- Example response

```
{
 "listener": {
 "client_ca_tls_container_ref": "417a0976969f497db8cbb083bff343ba",
 "protocol": "TERMINATED_HTTPS",
 "description": "my listener",
 "default_tls_container_ref": "23b58a961a4d4c95be585e98046e657a",
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "165b6a38-5278-4569-b747-b2ee65ea84a4"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "sni_container_refs": [],
 "connection_limit": -1,
 "protocol_port": 443,
 "tags": [],
 "default_pool_id": "c61310de-9a06-4f0c-850c-6f4797b9984c",
 "id": "f622c150-72f5-4263-a47a-e5003c652aa3",
 "name": "listener-jy-test2",

 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.2.5 Deleting a Listener

### Function

This API is used to delete a listener by ID.

### Constraints

Before deleting the listener, delete the associated backend server groups by referring to [5.3.5 Deleting a Backend Server Group](#), or change the value of **default\_pool\_id** to **null** by referring to [5.2.4 Updating a Listener](#) and delete associated forwarding policies by referring to [5.6.5 Deleting a Forwarding Policy](#).

### URI

DELETE /v2.0/lbaas/listeners/{listener\_id}

**Table 5-63** Parameter description

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

### Request

None

### Response

None

### Example Request

- Example request: Deleting a listener  
DELETE https://{Endpoint}/v2.0/lbaas/listeners/35cb8516-1173-4035-8dae-0dae3453f37f

### Example Response

- Example response  
None

### Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.3 Backend Server Group

## 5.3.1 Adding a Backend Server Group

### Function

This API is used to add a backend server group. After multiple backend servers are added to a backend server group, requests are distributed among backend servers based on the load balancing algorithm configured for the backend server group and the weight set for each backend server.

### Constraints

- If parameter **session-persistence** is configured, parameter **cookie\_name** is available only when the value of **type** is **APP\_COOKIE**.

### URI

POST /v2.0/lbaas/pools

### Request

**Table 5-64** Parameter description

| Parameter | Mandatory | Type   | Description                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Yes       | Object | Specifies the backend server group. For details, see <a href="#">Table 5-65</a> . |

**Table 5-65** pool parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                      |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id   | No        | String | Specifies the ID of the project where the backend server group is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters. |
| name        | No        | String | Specifies the name of the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                                           |
| description | No        | String | Provides supplementary information about the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                        |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol       | Yes       | String  | <p>Specifies the protocol that the backend server group uses to receive requests.</p> <p>TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| lb_algorithm   | Yes       | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> <p>When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</p>                                                                                                                                                                                                                                                                   |
| admin_state_up | No        | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |



| Parameter           | Mandatory | Type   | Description                                                                                                                                                                      |
|---------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| listener_id         | No        | String | Specifies the ID of the listener associated with the backend server group.<br>Specify either <b>listener_id</b> or <b>loadbalancer_id</b> , or both of them.                     |
| loadbalancer_id     | No        | String | Specifies the ID of the load balancer associated with the backend server group.<br>Specify either <b>listener_id</b> or <b>loadbalancer_id</b> , or both of them.                |
| session_persistence | No        | Object | Specifies the sticky session timeout duration in minutes. For details, see <a href="#">Table 5-66</a> .<br>If the value is <b>null</b> , the sticky session feature is disabled. |

**Table 5-66 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name. This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>, and the default value is <b>1</b>.</li> <li>• When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>, and the default value is <b>1440</b>.</li> </ul> |

## Response

**Table 5-67** Response parameters

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 5-68</a> . |

**Table 5-68** pools parameter description

| Parameter   | Type   | Description                                                                                                                           |
|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                                         |
| tenant_id   | String | <p>Specifies the ID of the project where the backend server group is used.</p> <p>The value contains a maximum of 255 characters.</p> |
| name        | String | <p>Specifies the name of the backend server group.</p> <p>The value contains a maximum of 255 characters.</p>                         |
| description | String | <p>Provides supplementary information about the backend server group.</p> <p>The value contains a maximum of 255 characters.</p>      |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol         | String  | <p>Specifies the protocol that the backend server group uses to receive requests.</p> <p>TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| lb_algorithm     | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li> </ul>                                                                                                                                                                                                                                                                          |
| members          | Array   | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| healthmonitor_id | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| admin_state_up   | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| listeners        | Array   | Lists the IDs of listeners associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| loadbalancers    | Array   | Lists the IDs of load balancers associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                |
|---------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| session_persistence | Object | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 5-72</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> . |

**Table 5-69 members** parameter description

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

**Table 5-70 listeners** parameter description

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

**Table 5-71 loadbalancers** parameter description

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

**Table 5-72 session\_persistence** parameter description

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type                | String  | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name         | String  | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| persistence_timeout | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <ul style="list-style-type: none"> <li>• Optional value ranges are as follows: <ul style="list-style-type: none"> <li>- When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>- When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Example Request

- Example request 1: Adding a backend server group with the sticky session feature disabled

POST https://{Endpoint}/v2.0/lbaas/pools

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "loadbalancer_id": "63ad9dfe-4750-479f-9630-ada43ccc8117",
```

```
 "protocol": "HTTP"
 }
}
```

- Example request 2: Adding an HTTP backend server group with the value of **type** set to **APP\_COOKIE**

POST https://{Endpoint}/v2.0/lbaas/pools

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "listener_id": "370fb112-e920-486a-b051-1d0d30704dd3",
 "protocol": "HTTP",
 "session_persistence": {
 "cookie_name": "my_cookie",
 "type": "APP_COOKIE",
 "persistence_timeout": 1
 },
 "admin_state_up": true
 }
}
```

- Example request 3: Adding an HTTP backend server group with the value of **type** set to **HTTP\_COOKIE**

POST https://{Endpoint}/v2.0/lbaas/pools

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "loadbalancer_id": "63ad9dfe-4750-479f-9630-ada43ccc8117",
 "protocol": "HTTP",
 "session_persistence": {
 "type": "HTTP_COOKIE"
 }
 }
}
```

## Example Response

- Example response 1

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "protocol": "HTTP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [],
 "members": [],
 "id": "4e496951-befb-47bf-9573-c1cd11825c07",
 "name": ""
 }
}
```

- Example response 2

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "protocol": "HTTP",
 "description": "",
 "admin_state_up": true,

```

```
"loadbalancers": [
 {
 "id": "6b041b9e-976b-40ba-b075-375be6110b53"
 }
],
"tenant_id": "145483a5107745e9b3d80f956713e6a3",

"session_persistence": {
 "cookie_name": "my_cookie",
 "type": "APP_COOKIE",
 "persistence_timeout": 1
},
"healthmonitor_id": null,
"listeners": [
 {
 "id": "370fb112-e920-486a-b051-1d0d30704dd3"
 }
],
"members": [

],
"id": "307f8968-9474-4d0c-8434-66be09dabcc1",
"name": ""
}
}
```

- Example response 3

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "protocol": "HTTP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "session_persistence": {
 "persistence_timeout": 1440,
 "cookie_name": null,
 "type": "HTTP_COOKIE"
 },
 "healthmonitor_id": null,
 "listeners": [],
 "members": [],
 "id": "d46eab56-d76b-4cd3-8952-3c3c4cf113aa",
 "name": ""
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.3.2 Querying Backend Server Groups

### Function

This API is used to query the backend server groups and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.



## Constraints

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

## URI

GET /v2.0/lbaas/pools

## Request

**Table 5-73** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the backend server group from which pagination query starts, that is, the ID of the last backend server group on the previous page. If this parameter is not specified, the first page will be queried.<br><br>This parameter must be used together with <b>limit</b> .                                                                                                                                       |
| limit        | No        | Integer | Specifies the number of backend server groups on each page.                                                                                                                                                                                                                                                                                                                                                                       |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                     |
| tenant_id    | No        | String  | Specifies the ID of the project where the backend server group is used.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                    |

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| description      | No        | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| healthmonitor_id | No        | String | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| loadbalancer_id  | No        | String | Specifies the ID of the load balancer associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| protocol         | No        | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| lb_algorithm     | No        | String | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"><li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li><li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li><li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li></ul> When the value is <b>SOURCE_IP</b> , the weights of backend servers in the server group are invalid. For details about parameter <b>weight</b> , see <a href="#">Table 5-110</a> . |
| member_address   | No        | String | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| member_device_id | No        | String | Specifies the ID of the ECS corresponding to the backend server in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## Response

**Table 5-74** Response parameters

| Parameter   | Type  | Description                                                                                                                                                                                              |
|-------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pools       | Array | Specifies the backend server group. For details, see <a href="#">Table 5-75</a> .                                                                                                                        |
| pools_links | List  | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 5-80</a> . |

**Table 5-75** pools parameter description

| Parameter    | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id           | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| tenant_id    | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                             |
| name         | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                     |
| description  | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                  |
| protocol     | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.                                                                                                                                                                                                                                                                                                                                                                                    |
| lb_algorithm | String | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> When the value is <b>SOURCE_IP</b> , the weights of backend servers in the server group are invalid. |
| members      | Array  | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                          |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| healthmonitor_id    | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                              |
| admin_state_up      | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                         |
| listeners           | Array   | Lists the IDs of listeners associated with the backend server group.                                                                                                                                                                                                                                                       |
| loadbalancers       | String  | Lists the IDs of load balancers associated with the backend server group.                                                                                                                                                                                                                                                  |
| session_persistence | Object  | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 5-79</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> . |

**Table 5-76** members parameter description

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

**Table 5-77** listeners parameter description

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

**Table 5-78** loadbalancers parameter description

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

**Table 5-79 session\_persistence** parameter description

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type                | String  | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name         | String  | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| persistence_timeout | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <ul style="list-style-type: none"> <li>• Optional value ranges are as follows: <ul style="list-style-type: none"> <li>- When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>- When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

**Table 5-80 pools\_links** parameter description

| Parameter | Type   | Description                                                                        |
|-----------|--------|------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively. |

| Parameter | Type   | Description                                                                                                                                                                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rel       | String | Specifies the prompt of the previous or next page. The value can be <b>next</b> or <b>previous</b> . <ul style="list-style-type: none"> <li>• <b>next</b>: indicates the URL of the next page.</li> <li>• <b>previous</b>: indicates the URL of the previous page.</li> </ul> |

## Example Request

- Example request 1: Querying all backend server groups  
GET https://{Endpoint}/v2.0/lbaas/pools?limit=2
- Example request 2: Querying backend server groups whose load balancing algorithm is **SOURCE\_IP**  
GET https://{Endpoint}/v2.0/lbaas/pools

## Example Response

- Example response 1

```

{
 "pools": [
 {
 "lb_algorithm": "SOURCE_IP",
 "protocol": "TCP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "07d28d4a-4899-40a3-a939-5d09d69019e1"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",

 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "1b421c2d-7e78-4a78-9ee4-c8ccba41f15b"
 }
],
 "members": [
 {
 "id": "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
 },
 {
 "id": "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
 }
],
 "id": "3a9f50bb-f041-4eac-a117-82472d8a0007",
 "name": "my-pool"
 }
],
 "pools_links": [
 {
 "href": "https://{Endpoint}/v2.0/lbaas/pools?limit=2&marker=0469a5ad-6233-4669-8d38-5920f2bd95b6",
 "rel": "next"
 },
 {
 "href": "https://{Endpoint}/v2.0/lbaas/pools?limit=2&marker=02d43e35-e874-4139-bdba-d65609db20ab&page_reverse=True",
 "rel": "previous"
 }
]
}

```

```
 }
]
}
```

- Example response 2

```
{
 "pools": [
 {
 "lb_algorithm": "SOURCE_IP",
 "protocol": "TCP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "07d28d4a-4899-40a3-a939-5d09d69019e1"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "1b421c2d-7e78-4a78-9ee4-c8ccba41f15b"
 }
],
 "members": [
 {
 "id": "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
 },
 {
 "id": "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
 }
],
 "id": "3a9f50bb-f041-4eac-a117-82472d8a0007",
 "name": "my-pool"
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.3.3 Querying Details of a Backend Server Group

### Function

This API is used to query details about a backend server group using its ID.

### URI

GET /v2.0/lbaas/pools/{pool\_id}

**Table 5-81** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

## Request

None

## Response

**Table 5-82** Response parameters

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 5-83</a> . |

**Table 5-83** pools parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| protocol    | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.<br>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows: <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |



| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm        | String  | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li> </ul> |
| members             | Array   | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| healthmonitor_id    | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| admin_status_up     | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                    |
| listeners           | Array   | Lists the IDs of listeners associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| loadbalancers       | Array   | Lists the IDs of load balancers associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| session_persistence | Object  | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 5-72</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> .                                                                                                                                                                            |

**Table 5-84** members parameter description

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

**Table 5-85 listeners** parameter description

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

**Table 5-86 loadbalancers** parameter description

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

**Table 5-87 session\_persistence** parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | String | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter               | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistenc<br>e_timeout | Integer | Specifies the sticky session timeout duration in minutes.<br><br>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b> . <ul style="list-style-type: none"><li>Optional value ranges are as follows:<ul style="list-style-type: none"><li>When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li><li>When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li></ul></li></ul> |

## Example Request

- Example request: Querying details of a backend server group  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332

## Example Response

- Example response

```
{
 "pool": {
 "lb_algorithm": "SOURCE_IP",
 "protocol": "TCP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "6f52004c-3fe9-4c09-b8ce-ed9d9c74a3b1"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "6e29b2cd-4e53-40f6-ae7b-29e918de67f2"
 }
],
 "members": [],
 "id": "5a9a3e9e-d1aa-448e-af37-a70171f2a332",
 "name": "my-pool"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.3.4 Updating a Backend Server Group

### Function

This API is used to update a backend server group.

## Constraints

If the provisioning status of the load balancer associated with a backend server group is not **ACTIVE**, the backend server group cannot be updated.

## URI

PUT /v2.0/lbaas/pools/{pool\_id}

**Table 5-88** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

## Request

**Table 5-89** Parameter description

| Parameter | Mandatory | Type   | Description                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Yes       | Object | Specifies the backend server group. For details, see <a href="#">Table 5-90</a> . |

**Table 5-90** pool parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                           |
|-------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------|
| name        | No        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                    |
| description | No        | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters. |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm        | No        | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>Optional values are as follows:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> <p>When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</p> |
| admin_state_up      | No        | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                     |
| session_persistence | No        | Object  | <p>Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 5-97</a>.</p> <p>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.</p> <p>When this feature is disabled, the parameter value is <b>null</b>.</p>                                                                                                                                                                          |

**Table 5-91 session\_persistence** parameter description

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type                | No        | String  | <p>Specifies the sticky session type. Optional values are as follows:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> <li>• When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</li> </ul> |
| cookie_name         | No        | String  | <p>Specifies the cookie name. This parameter is mandatory and can be specified when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes. This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>. Optional value ranges are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>• When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## Response

**Table 5-92** Parameter description

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 5-93</a> . |

**Table 5-93** pools parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| protocol    | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.<br>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows: <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm        | String  | Specifies the load balancing algorithm of the backend server group.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li> </ul> |
| members             | Array   | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| healthmonitor_id    | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| admin_status_up     | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                    |
| listeners           | Array   | Lists the IDs of listeners associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| loadbalancers       | Array   | Lists the IDs of load balancers associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| session_persistence | Object  | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 5-72</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> .                                                                                                                                                                            |

**Table 5-94** members parameter description

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



**Table 5-95 listeners** parameter description

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

**Table 5-96 loadbalancers** parameter description

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

**Table 5-97 session\_persistence** parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | String | <p>Specifies the sticky session type.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter               | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistenc<br>e_timeout | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <ul style="list-style-type: none"> <li>Optional value ranges are as follows: <ul style="list-style-type: none"> <li>When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> </li> </ul> |

## Example Request

- Example request 1: Updating a backend server group

PUT https://{Endpoint}/v2.0/lbaas/pools/12ff63af-4127-4074-a251-bcb2ecc53ebe

```
{
 "pool": {
 "name": "pool2",
 "description": "pool two",
 "lb_algorithm": "LEAST_CONNECTIONS"
 }
}
```

- Example request 2: Disabling the sticky session feature of a backend server group

PUT https://{Endpoint}/v2.0/lbaas/pools/d46eab56-d76b-4cd3-8952-3c3c4cf113aa

```
{
 "pool": {
 "session_persistence": null
 }
}
```

## Example Response

- Example response 1

```
{
 "pool": {
 "lb_algorithm": "LEAST_CONNECTIONS",
 "protocol": "HTTP",
 "description": "pool two",
 "loadbalancers": [
 {
 "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
 }
],
 "admin_state_up": true,
 "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",
 "session_persistence": {
 "cookie_name": null,
 "type": "HTTP_COOKIE",
 "persistence_timeout": 1
 },
 "healthmonitor_id": null,
 "listeners": [
```

```
{
 "id": "39de4d56-d663-46e5-85a1-5b9d5fa17829"
},
"members": [],
"id": "12ff63af-4127-4074-a251-bcb2ecc53ebe",
"name": "pool2"
}
```

- Example response 2

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "protocol": "HTTP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [],
 "members": [],
 "id": "d46eab56-d76b-4cd3-8952-3c3c4cf113aa",
 "name": ""
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.3.5 Deleting a Backend Server Group

### Function

This API is used to delete a backend server group.

### Constraints

Before deleting a backend server group, remove all backend servers, delete the health check, and disassociate forwarding policies from the backend server group by changing the value of **redirect\_pool\_id** to **null**. For details, see [5.6.4 Updating a Forwarding Policy](#).

### URI

DELETE /v2.0/lbaas/pools/{pool\_id}

**Table 5-98** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

## Request

None

## Response

None

## Example Request

- Example request: Deleting a backend server group  
DELETE /v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 5.4 Backend Server

## 5.4.1 Adding a Backend Server

### Function

This API is used to add a backend server to a specific backend server group. After a backend server group is added to a listener, traffic is distributed to backend servers in this server group using the specified load balancing algorithm.

### Constraints

Two backend servers in a backend server group cannot have the same private IP address or port number.

The subnet specified during server creation must be in the same VPC as the subnet from which the private IP address of the load balancer is assigned.

### URI

POST /v2.0/lbaas/pools/{pool\_id}/members

**Table 5-99** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

## Request

**Table 5-100** Parameter description

| Parameter | Mandatory | Type   | Description                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------|
| member    | Yes       | Object | Specifies the backend server. For details, see <a href="#">Table 5-101</a> . |

**Table 5-101 member** parameter description

| Parameter     | Mandatory | Type    | Description                                                                                                                                                                                                                                                                            |
|---------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id     | No        | String  | Specifies the ID of the project where the backend server is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br>The value contains a maximum of 255 characters.                                                                                 |
| name          | No        | String  | Specifies the backend server name. The value is an empty character string by default.<br>The value contains a maximum of 255 characters.                                                                                                                                               |
| address       | Yes       | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br><br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters. |
| protocol_port | Yes       | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                 |
| subnet_id     | Yes       | String  | Specifies the ID of the subnet where the backend server works.<br><br>The private IP address of the backend server is in this subnet.<br><br>Only IPv4 subnets are supported.                                                                                                          |

| 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>Currently, the value can only be <b>true</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |
| weight         | No        | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                     |

## Response

**Table 5-102** Response parameters

| Parameter | Type   | Description                                                                  |
|-----------|--------|------------------------------------------------------------------------------|
| member    | Object | Specifies the backend server. For details, see <a href="#">Table 5-103</a> . |

**Table 5-103** member parameter description

| Parameter | Type   | Description                                                                                                                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer. |
| tenant_id | String | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                    |
| name      | String | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                   |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| address          | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br><br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br><br>The value contains a maximum of 64 characters.                                                                                                                                                                                                                                                                                                                                                                   |
| protocol_port    | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| subnet_id        | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br><br>IPv6 subnets are not supported.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| admin_state_up   | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br><br>Currently, the value can only be <b>true</b> .<br><br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> .                                                                                                                                                                                                                                               |
| weight           | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br><br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| operating_status | String  | Specifies the health check result of the backend server. The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li> <li>• <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li> <li>• <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li> <li>• The value contains a maximum of 16 characters.</li> </ul> |

## Example Request

- Step 1: Query the subnet ID and IP address using the server ID. **device\_id** in the request indicates the server ID. Obtain the values of **subnet\_id** and **ip\_address** of the primary NIC (the port for which **primary\_interface** is **true**) in the response body.

GET https://{VPCEndpoint}/v2.0/ports?device\_id=f738c464-b5c2-45df-86c0-7f436620cd54

### Example response

```
{
 "ports": [
 {
 "id": "94971c39-46f0-443a-85e8-31cb7497c78e",
 "name": "",
 "status": "ACTIVE",
 "admin_state_up": true,
 "fixed_ips": [
 {
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "ip_address": "192.168.44.11"
 }
],
 "mac_address": "fa:16:3e:5c:d2:57",
 "network_id": "1b76b9c2-9b7e-4ced-81bd-d13f7389d7c9",
 "tenant_id": "04dd36f978800fe22f9bc00bea090736",
 "project_id": "04dd36f978800fe22f9bc00bea090736",
 "device_id": "f738c464-b5c2-45df-86c0-7f436620cd54",
 "device_owner": "compute:cn-north-4a",
 "security_groups": [
 "a10dfc31-0055-4b84-b36e-1291b918125c",
 "7a233393-5be2-4dff-8360-1558dd950f6e"
],
 "extra_dhcp_opts": [],
 "allowed_address_pairs": [],
 "binding:vnic_type": "normal",
 "binding:vif_details": {
 "primary_interface": true
 },
 "binding:profile": {},
 "port_security_enabled": true,
 "created_at": "2019-11-12T17:17:51",
 "updated_at": "2019-11-12T17:17:51"
 }
]
}
```

- Step 2: Use the subnet ID and IP address obtained in [Step 1](#) to add a backend server.

POST https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members

```
{
 "member": {
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "protocol_port": 88,
 "name": "member-jy-tt-1",
 "address": "192.168.44.11"
 }
}
```

### Example Response

- Example response

```
{
 "member": {
 "name": "member-jy-tt-1",
 "weight": 1,
 "admin_state_up": true,
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",

 "address": "192.168.44.11",
 "protocol_port": 88,
 "operating_status": "ONLINE",
 "id": "c0042496-e220-44f6-914b-e6ca33bab503"
 }
}
```



```
}
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.4.2 Querying Backend Servers

### Function

This API is used to query backend servers in a specific backend server group. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

### URI

GET /v2.0/lbaas/pools/{pool\_id}/members

**Table 5-104** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

### Request

**Table 5-105** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String | Specifies the ID of the backend server from which pagination query starts, that is, the ID of the last backend server on the previous page. If this parameter is not specified, the first page will be queried.<br><br>This parameter must be used together with <b>limit</b> . |

| Parameter     | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit         | No        | Integer | Specifies the number of backend servers on each page. If this parameter is not set, all backend servers are queried by default.                                                                                                                                                                                                                                                                                               |
| page_reverse  | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> . |
| id            | No        | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.                                                                                                                                                                                                       |
| tenant_id     | No        | String  | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                          |
| name          | No        | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                         |
| address       | No        | String  | Specifies the private IP address of the backend server.<br>The value contains a maximum of 64 characters.                                                                                                                                                                                                                                                                                                                     |
| protocol_port | No        | Integer | Specifies the port used by the backend server.                                                                                                                                                                                                                                                                                                                                                                                |
| subnet_id     | No        | String  | Specifies the ID of the subnet where the backend server works.                                                                                                                                                                                                                                                                                                                                                                |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                             |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the backend server.<br>The value can be <b>true</b> or <b>false</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |
| weight         | No        | Integer | Specifies the backend server weight.                                                                                                                                                                                                                                                                                                                    |

## Response

**Table 5-106** Response parameters

| Parameter     | Type  | Description                                                                                                                                                                                               |
|---------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| members       | Array | Lists backend servers in the backend server group. For details, see <a href="#">Table 5-107</a> .                                                                                                         |
| members_links | Array | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 5-108</a> . |

**Table 5-107** members parameter description

| Parameter | Type   | Description                                                                                                                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer. |
| tenant_id | String | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                    |
| name      | String | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                   |

| Parameter          | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| address            | String  | <p>Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b>.</p> <p>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.</p> <p>The value contains a maximum of 64 characters.</p>                                                                                                                                                                                                                                                                                                                                                                    |
| protocol_port      | Integer | <p>Specifies the port used by the backend server. The port number ranges from 1 to 65535.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| subnet_id          | String  | <p>Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.</p> <p>IPv6 subnets are not supported.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| admin_state_up     | Boolean | <p>Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b>.</p> <p>Currently, the value can only be <b>true</b>.</p> <p><b>NOTE</b><br/>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b>. Otherwise, the value is <b>false</b>.</p>                                                                                                                                                                                                                                                  |
| weight             | Integer | <p>Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b>.</p> <p>If the value is <b>0</b>, the backend server will not accept new requests. The default value is <b>1</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| operating_statuses | String  | <p>Specifies the health check result of the backend server. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li> <li>• <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li> <li>• <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li> <li>• The value contains a maximum of 16 characters.</li> </ul> |

**Table 5-108** members\_links parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                                   |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                            |
| rel       | String | Specifies the prompt of the previous or next page. The value can be <b>next</b> or <b>previous</b> . <ul style="list-style-type: none"> <li>• <b>next</b>: indicates the URL of the next page.</li> <li>• <b>previous</b>: indicates the URL of the previous page.</li> </ul> |

### Example Request

- Example request 1: Querying all backend servers  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members
- Example request 2: Querying the backend cloud server whose IP address is 10.0.0.8 and port number is 80  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members?address=10.0.0.8&protocol\_port=80

### Example Response

- Example response 1

```
{
 "members": [
 {
 "address": "10.0.0.8",
 "admin_state_up": true,
 "id": "9a7aff27-fd41-4ec1-ba4c-3eb92c629313",
 "protocol_port": 80,
 "subnet_id": "013d3059-87a4-45a5-91e9-d721068ae0b2",
 "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",
 "weight": 1,
 "operating_status": "ONLINE",
 "name": "member-name"
 }
]
}
```
- Example response 2

```
{
 "members": [
 {
 "address": "10.0.0.8",
 "admin_state_up": true,
 "id": "9a7aff27-fd41-4ec1-ba4c-3eb92c629313",
 "protocol_port": 80,
 "subnet_id": "013d3059-87a4-45a5-91e9-d721068ae0b2",
 "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",

 "weight": 1,
 "operating_status": "ONLINE",
 "name": "member-name"
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.4.3 Querying Details of a Backend Server

### Function

This API is used to query details about a backend server.

### URI

GET /v2.0/lbaas/pools/{pool\_id}/members/{member\_id}

**Table 5-109** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                          |
| member_id | Yes       | String | Specifies the backend server ID.<br><b>NOTE</b> <ul style="list-style-type: none"><li>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.</li><li>You can obtain this value by calling the API described in <a href="#">5.4.2 Querying Backend Servers</a>.</li></ul> |

### Request

None

### Response

**Table 5-110** Response parameters

| Parameter | Type   | Description                                                               |
|-----------|--------|---------------------------------------------------------------------------|
| member    | Object | Lists the backend servers. For details, see <a href="#">Table 5-111</a> . |

**Table 5-111 member** parameter description

| Parameter       | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id              | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.                                                                                                                                                                                |
| tenant_id       | String  | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                   |
| name            | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                  |
| address         | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters.                                                                                                                     |
| protocol_port   | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                                                                                                 |
| subnet_id       | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br>IPv6 subnets are not supported.                                                                                                                                                                                                                                      |
| admin_status_up | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br>Currently, the value can only be <b>true</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |
| weight          | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                     |

| Parameter        | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| operating_status | String | <p>Specifies the health check result of the backend server. The value can be one of the following:</p> <ul style="list-style-type: none"><li>● <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li><li>● <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li><li>● <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li><li>● The value contains a maximum of 16 characters.</li></ul> |

## Example Request

- Example request: Querying details of a backend server  
GET https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/cf024846-7516-4e3a-b0fb-6590322c836f

## Example Response

- Example response

```
{
 "member": {
 "name": "",
 "weight": 1,
 "admin_state_up": true,
 "subnet_id": "823d5866-6e30-45c2-9b1a-a1ebc3757fdb",
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",

 "address": "192.172.3.100",
 "protocol_port": 8080,
 "operating_status": "ONLINE",
 "id": "e58f5bfa-0e46-4bc5-951c-8473d3e5f24a"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.4.4 Updating a Backend Server

### Function

This API is used to update a backend server. You can modify its name and weight. You can set a larger weight for backend servers that can receive more traffic.



## Constraints

If the provisioning status of the associated load balancer is not **ACTIVE**, the backend server cannot be updated.

## URI

PUT /v2.0/lbaas/pools/{pool\_id}/members/{member\_id}

**Table 5-112** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                             |
| member_id | Yes       | String | Specifies the backend server ID.<br><b>NOTE</b> <ul style="list-style-type: none"> <li>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.</li> <li>You can obtain this value by calling the API described in <a href="#">5.4.2 Querying Backend Servers</a>.</li> </ul> |

## Request

**Table 5-113** Parameter description

| Parameter | Mandatory | Type   | Description                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------|
| member    | Yes       | Object | Specifies the backend server. For details, see <a href="#">Table 5-114</a> . |

**Table 5-114 member** parameter description

| Parameter | Mandatory | Type   | Description                                                                        |
|-----------|-----------|--------|------------------------------------------------------------------------------------|
| name      | No        | String | Specifies the backend server name. The value contains a maximum of 255 characters. |

| 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>Currently, the value can only be <b>true</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |
| weight         | No        | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                     |

## Response

**Table 5-115** Response parameters

| Parameter | Type   | Description                                                                  |
|-----------|--------|------------------------------------------------------------------------------|
| member    | Object | Specifies the backend server. For details, see <a href="#">Table 5-116</a> . |

**Table 5-116** member parameter description

| Parameter | Type   | Description                                                                                                                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer. |
| tenant_id | String | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                    |
| name      | String | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                   |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| address          | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br><br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br><br>The value contains a maximum of 64 characters.                                                                                                                                                                                                                                                                                                                                                                   |
| protocol_port    | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| subnet_id        | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br><br>IPv6 subnets are not supported.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| admin_state_up   | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br><br>Currently, the value can only be <b>true</b> .<br><br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> .                                                                                                                                                                                                                                               |
| weight           | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br><br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| operating_status | String  | Specifies the health check result of the backend server. The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li> <li>• <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li> <li>• <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li> <li>• The value contains a maximum of 16 characters.</li> </ul> |

## Example Request

- Example request: Updating the name and weight of a backend server  
PUT https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/c0042496-e220-44f6-914b-e6ca33bab503  

```
{
```

```
"member": {
 "name": "member create test",
 "weight": 10
}
```

### Example Response

- Example response

```
{
 "member": {
 "name": "member-jy-tt-1",
 "weight": 1,
 "admin_state_up": true,
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "address": "192.168.44.11",
 "protocol_port": 88,
 "operating_status": "ONLINE",
 "id": "c0042496-e220-44f6-914b-e6ca33bab503"
 }
}
```

### Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.4.5 Removing a Backend Server

### Function

This API is used to remove a backend server by its ID.

### Constraints

After you remove a backend server, new connections to this server will not be established. However, long connections that have been established will be maintained.

### URI

DELETE /v2.0/lbaas/pools/{pool\_id}/members/{member\_id}

**Table 5-117** Parameter description

| Parameter | Mandatory | Type   | Description                                   |
|-----------|-----------|--------|-----------------------------------------------|
| pool_id   | Yes       | String | Specifies the ID of the backend server group. |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| member_id | Yes       | String | Specifies the backend server ID.<br><b>NOTE</b> <ul style="list-style-type: none"><li>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.</li><li>You can obtain this value by calling the API described in <a href="#">5.4.2 Querying Backend Servers</a>.</li></ul> |

## Request

None

## Response

None

## Example Request

- Example request: Removing a backend server  
DELETE https://{Endpoint}/v2.0/lbaas/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/cf024846-7516-4e3a-b0fb-6590322c836f

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 5.5 Health Check

## 5.5.1 Configuring a Health Check

### Function

This API is used to configure a health check for a backend server group to check the status of backend servers. If the health check result is **OFFLINE**, backend servers are considered unhealthy. You need to check the server configuration.

### Constraints

The security group must allow access from 100.125.0.0/16. Otherwise, the health check cannot be performed.

If UDP is used for the health check, the protocol of the backend server group must be UDP.

## URI

POST /v2.0/lbaas/healthmonitors

## Request

**Table 5-118** Parameter description

| Parameter     | Mandatory | Type   | Description                                                                |
|---------------|-----------|--------|----------------------------------------------------------------------------|
| healthmonitor | Yes       | Object | Specifies the health check. For details, see <a href="#">Table 5-119</a> . |

**Table 5-119** healthmonitor parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                               |
|------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id        | No        | String  | Specifies the ID of the project where the health check is performed.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br>The value contains a maximum of 255 characters. |
| name             | No        | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                       |
| delay            | Yes       | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                     |
| max_retries      | Yes       | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .           |
| max_retries_down | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .           |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pool_id        | Yes       | String  | Specifies the ID of the backend server group.<br>Only one health check can be configured for each backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| admin_state_up | No        | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul>                                                                                                                                                                                                                                                                                          |
| timeout        | Yes       | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                                                                                                                                                                                                                                                              |
| type           | Yes       | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .<br>The relationships between the health check protocol and the protocol used by the backend server group are as follows: <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> <li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> </ul> |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| monitor_port | No        | Integer | <p>Specifies the health check port. The port number ranges from 1 to 65535.</p> <p>The value is left blank by default, indicating that the port of the backend server is used as the health check port.</p>                                                                                                                                                                                                                                                                                                                                                         |
| domain_name  | No        | String  | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> <p>The value contains a maximum of 100 characters.</p> |
| url_path     | No        | String  | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                            |



| Parameter      | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | No        | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <p>A single value, such as <b>200</b></p> <p>A list of values, such as <b>200,202</b></p> <p>A value range, such as <b>200-204</b></p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 64 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |
| http_method    | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT,</b> and <b>PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 16 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                          |

## Response

**Table 5-120** Response parameters

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 5-121</a> . |

**Table 5-121** healthmonitor parameter description

| Parameter | Type   | Description                                                          |
|-----------|--------|----------------------------------------------------------------------|
| id        | String | Specifies the health check ID.                                       |
| tenant_id | String | Specifies the ID of the project where the health check is performed. |
| name      | String | Specifies the health check name.                                     |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| delay            | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| max_retries      | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| pools            | Array   | Specifies the ID of the backend server group associated with the health check. For details, see <a href="#">Table 5-122</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| admin_state_up   | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul>                                                                                                                                                                                                                                                                                       |
| timeout          | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                                                                                                                                                                                                                                                           |
| type             | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .<br>The relationships between the value of this parameter and the protocol of the backend server group are as follows: <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> <li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> </ul> |
| monitor_port     | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter      | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <ul style="list-style-type: none"> <li>A single value, such as <b>200</b></li> <li>A list of values, such as <b>200,202</b></li> <li>A value range, such as <b>200-204</b></li> </ul> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>Currently, this parameter is not supported and is fixed at <b>200</b>.</p>                                                            |
| domain_name    | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> |
| url_path       | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                                            |
| http_method    | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                                      |

**Table 5-122** pools parameter description

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

## Example Request

- Example request: Configuring a health check  
POST `https://{Endpoint}/v2.0/lbaas/healthmonitors`

```
{
 "healthmonitor": {
 "admin_state_up": true,
 "pool_id": "bb44bffb-05d9-412c-9d9c-b189d9e14193",
 "domain_name": "www.test.com",
 "delay": 10,
 "max_retries": 10,
 "max_retries_down": 5,
 "timeout": 10,
 "type": "HTTP"
 }
}
```

## Example Response

- Example response

```
{
 "healthmonitor": {
 "name": "",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "domain_name": "www.test.com",
 "delay": 10,
 "max_retries": 10,
 "expected_codes": "200",
 "max_retries_down": 5,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "2dca3867-98c5-4cde-8f2c-b89ae6bd7e36",
 "monitor_port": 112
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.5.2 Querying Health Checks

### Function

This API is used to query the health checks. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### URI

GET `/v2.0/lbaas/healthmonitors`

## Constraints

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

## Request

**Table 5-123** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the health check from which pagination query starts, that is, the ID of the last health check on the previous page.<br>This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                           |
| limit        | No        | Integer | Specifies the number of health checks on each page. If this parameter is not set, all health checks are queried by default.                                                                                                                                                                                                                                                                                                   |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the health check ID.                                                                                                                                                                                                                                                                                                                                                                                                |
| tenant_id    | No        | String  | Specifies the ID of the project where the health check is performed.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                       |
| name         | No        | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                           |
| delay        | No        | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                                                                                                         |

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                        |
|------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_retries      | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| max_retries_down | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| admin_state_up   | No        | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout          | No        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                     |
| type             | No        | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                        |
| monitor_port     | No        | Integer | Specifies the port used for the health check.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                              |

| Parameter      | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | No        | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <ul style="list-style-type: none"> <li>A single value, such as <b>200</b></li> <li>A list of values, such as <b>200,202</b></li> <li>A value range, such as <b>200-204</b></li> </ul> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 64 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                        |
| domain_name    | No        | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> <p>The value contains a maximum of 100 characters.</p> |
| url_path       | No        | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                            |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                          |
|-------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| http_method | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT,</b> and <b>PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 16 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |

## Response

**Table 5-124** Response parameters

| Parameter            | Type  | Description                                                                                                                                                                                                         |
|----------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| healthmonitors       | Array | Lists the health checks. For details, see <a href="#">Table 5-125</a> .                                                                                                                                             |
| healthmonitors_links | Array | <p>Provides links to the previous or next page during pagination query, respectively.</p> <p>This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 5-127</a>.</p> |

**Table 5-125** healthmonitors parameter description

| Parameter | Type    | Description                                                                                                           |
|-----------|---------|-----------------------------------------------------------------------------------------------------------------------|
| id        | String  | Specifies the health check ID.                                                                                        |
| tenant_id | String  | Specifies the ID of the project where the health check is performed.                                                  |
| name      | String  | <p>Specifies the health check name.</p> <p>The value contains a maximum of 255 characters.</p>                        |
| delay     | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> . |



| 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> .                                                                                                                                                 |
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> .<br>The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                 |
| pools            | Array   | Lists the IDs of backend server groups associated with the health check.                                                                                                                                                                                                                                                                           |
| admin_state_up   | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout          | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                     |
| type             | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                        |
| monitor_port     | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                   |

| Parameter      | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <ul style="list-style-type: none"> <li>A single value, such as <b>200</b></li> <li>A list of values, such as <b>200,202</b></li> <li>A value range, such as <b>200-204</b></li> </ul> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 64 characters.</p>                                                                                                                                           |
| domain_name    | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> <p>The value contains a maximum of 100 characters.</p> |
| url_path       | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                            |
| http_method    | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 16 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                                       |

**Table 5-126 pools** parameter description

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

**Table 5-127 healthmonitors\_links** parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                           |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                    |
| rel       | String | Specifies the prompt of the previous or next page.<br>The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

### Example Request

- Example request 1: Querying all health checks  
GET https://{Endpoint}/v2.0/lbaas/healthmonitors
- Example request 2: Querying HTTP health checks  
GET https://{Endpoint}/v2.0/lbaas/healthmonitors?type=HTTP

### Example Response

- Example response 1
 

```
{
 "healthmonitors": [
 {
 "monitor_port": null,
 "name": "",
 "admin_state_up": true,
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "domain_name": null,
 "delay": 5,

 "max_retries": 3,
 "max_retries_down": 5,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "caef8316-6b65-4676-8293-cf41fb63cc2a"
 }
],
 "url_path": "/"
 }
]
}
```

```

 "type": "HTTP",
 "id": "1b587819-d619-49c1-9101-fe72d8b361ef"
 }
]
}

```

- Example response 2

```

{
 "healthmonitors": [
 {
 "monitor_port": null,
 "name": "",
 "admin_state_up": true,
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "domain_name": null,
 "delay": 5,
 "expected_codes": "200-204,300-302,401",
 "max_retries": 3,
 "max_retries_down": 5,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "caef8316-6b65-4676-8293-cf41fb63cc2a"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "1b587819-d619-49c1-9101-fe72d8b361ef"
 }
]
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.5.3 Querying Details of a Health Check

### Function

This API is used to query details about a health check using its ID.

### URI

GET /v2.0/lbaas/healthmonitors/{healthmonitor\_id}

**Table 5-128** Parameter description

| Parameter        | Mandatory | Type   | Description                    |
|------------------|-----------|--------|--------------------------------|
| healthmonitor_id | Yes       | String | Specifies the health check ID. |

### Request

None

## Response

**Table 5-129** Response parameters

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 5-130</a> . |

**Table 5-130** healthmonitor parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                        |
|------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the health check ID.                                                                                                                                                                                                                                                                                                                     |
| tenant_id        | String  | Specifies the ID of the project where the health check is performed.                                                                                                                                                                                                                                                                               |
| name             | String  | Specifies the health check name.                                                                                                                                                                                                                                                                                                                   |
| delay            | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                              |
| max_retries      | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| pools            | Array   | Specifies the ID of the backend server group associated with the health check. For details, see <a href="#">Table 5-122</a> .                                                                                                                                                                                                                      |
| admin_state_up   | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout          | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                     |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type           | String  | <p>Specifies the health check protocol.</p> <p>The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, or <b>HTTP</b>.</p> <p>The relationships between the value of this parameter and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> <li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> </ul> |
| monitor_port   | Integer | <p>Specifies the health check port. The port number ranges from 1 to 65535.</p> <p>The value is left blank by default, indicating that the port of the backend server is used as the health check port.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| expected_codes | String  | <p>Specifies the expected HTTP status code. The following options are available:</p> <p>A single value, such as <b>200</b></p> <p>A list of values, such as <b>200,202</b></p> <p>A value range, such as <b>200-204</b></p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>Currently, this parameter is not supported and is fixed at <b>200</b>.</p>                                                                                                                                                                                                                                                   |
| domain_name    | String  | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p>                                                                                                                                         |
| url_path       | String  | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                    |

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                    |
|-------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| http_method | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT,</b> and <b>PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |

**Table 5-131** pools parameter description

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

## Example Request

- Example request: Querying details of a health check  
GET https://{Endpoint}/v2.0/lbaas/healthmonitors/b7633ade-24dc-4d72-8475-06aa22be5412

## Example Response

- Example response
 

```
{
 "healthmonitor": {
 "name": "",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "domain_name": null,
 "delay": 10,
 "expected_codes": "200-204,300-302,401",
 "max_retries": 10,
 "max_retries_down": 5,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "61c24cba-19bb-45c1-a013-7565e5f98872",
 "monitor_port": 112
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.5.4 Updating a Health Check

### Function

This API is used to update a health check.

### Constraints

If **provisioning\_status** of the load balancer for which the health check is configured is not **ACTIVE**, the health check cannot be updated.

### URI

PUT /v2.0/lbaas/healthmonitors/{healthmonitor\_id}

**Table 5-132** Parameter description

| Parameter        | Mandatory | Type   | Description                    |
|------------------|-----------|--------|--------------------------------|
| healthmonitor_id | Yes       | String | Specifies the health check ID. |

### Request

**Table 5-133** Parameter description

| Parameter     | Mandatory | Type   | Description                                                                |
|---------------|-----------|--------|----------------------------------------------------------------------------|
| healthmonitor | Yes       | Object | Specifies the health check. For details, see <a href="#">Table 5-134</a> . |

**Table 5-134** healthmonitor parameter description

| Parameter | Mandatory | Type    | Description                                                                                                           |
|-----------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------|
| name      | No        | String  | Specifies the health check name. The value contains a maximum of 255 characters.                                      |
| delay     | No        | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> . |



| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                        |
|------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| max_retries      | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| max_retries_down | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| admin_state_up   | No        | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout          | No        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                     |
| type             | No        | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                        |
| monitor_port     | No        | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                   |
| expected_codes   | No        | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .                                                     |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain_name | No        | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p> <p>The value contains a maximum of 100 characters.</p> |
| url_path    | No        | String | <p>Specifies the HTTP request path for the health check. The default value is /, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                            |
| http_method | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 16 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                                       |

## Response

**Table 5-135** Response parameters

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 5-136</a> . |

**Table 5-136** healthmonitor parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                        |
|------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the health check ID.                                                                                                                                                                                                                                                                                                                     |
| tenant_id        | String  | Specifies the ID of the project where the health check is performed.                                                                                                                                                                                                                                                                               |
| name             | String  | Specifies the health check name.                                                                                                                                                                                                                                                                                                                   |
| delay            | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                              |
| max_retries      | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| max_retries_down | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>ONLINE</b> to <b>OFFLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| pools            | Array   | Specifies the ID of the backend server group associated with the health check. For details, see <a href="#">Table 5-122</a> .                                                                                                                                                                                                                      |
| admin_state_up   | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout          | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                     |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type           | String  | <p>Specifies the health check protocol.</p> <p>The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, or <b>HTTP</b>.</p> <p>The relationships between the value of this parameter and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• If the protocol of the backend server group is UDP, the parameter value can only be <b>UDP_CONNECT</b>.</li> <li>• If the protocol of the backend server group is TCP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> <li>• If the protocol of the backend server group is HTTP, the parameter value can be <b>TCP</b> or <b>HTTP</b>.</li> </ul> |
| monitor_port   | Integer | <p>Specifies the health check port. The port number ranges from 1 to 65535.</p> <p>The value is left blank by default, indicating that the port of the backend server is used as the health check port.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| expected_codes | String  | <p>Specifies the expected HTTP status code. The following options are available:</p> <p>A single value, such as <b>200</b></p> <p>A list of values, such as <b>200,202</b></p> <p>A value range, such as <b>200-204</b></p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>Currently, this parameter is not supported and is fixed at <b>200</b>.</p>                                                                                                                                                                                                                                                   |
| domain_name    | String  | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, <b>www.test.com</b>.</p>                                                                                                                                         |
| url_path       | String  | <p>Specifies the HTTP request path for the health check. The default value is <b>/</b>, and the value must start with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                                                                                                                                                                             |

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                    |
|-------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| http_method | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT,</b> and <b>PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |

**Table 5-137** pools parameter description

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

## Example Request

- Example request: Updating a health check

PUT https://{Endpoint}/v2.0/lbaas/healthmonitors/b7633ade-24dc-4d72-8475-06aa22be5412

```
{
 "healthmonitor": {
 "delay": 15,
 "name": "health-xx",
 "timeout": 12
 }
}
```

## Example Response

- Example response

```
{
 "healthmonitor": {
 "name": "health-xx",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "domain_name": null,
 "delay": 15,
 "expected_codes": "200",
 "max_retries": 10,
 "max_retries_down": 5,
 "http_method": "GET",
 "timeout": 12,
 "pools": [
 {
 "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "2dca3867-98c5-4cde-8f2c-b89ae6bd7e36",
 "monitor_port": 112
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.5.5 Deleting a Health Check

### Function

This API is used to delete a health check.

### Constraints

If **provisioning\_status** of the load balancer for which the health check is configured is not **ACTIVE**, the health check cannot be deleted.

### URI

DELETE /v2.0/lbaas/healthmonitors/{healthmonitor\_id}

**Table 5-138** Parameter description

| Parameter        | Mandatory | Type   | Description                    |
|------------------|-----------|--------|--------------------------------|
| healthmonitor_id | Yes       | String | Specifies the health check ID. |

### Request

None

### Response

None

### Example Request

- Example request: Deleting a health check  
DELETE https://{Endpoint}/v2.0/lbaas/healthmonitors/b7633ade-24dc-4d72-8475-06aa22be5412

### Example Response

- Example response  
None

### Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.6 Forwarding Policy

## 5.6.1 Adding a Forwarding Policy

### Function

This API is used to add a forwarding policy. The listener and forwarding policy determine how traffic is forwarded to backend servers.

- By matching the URL or domain name specified in the forwarding policy when **action** is set to **REDIRECT\_TO\_POOL**, the load balancer distributes the traffic to backend servers in a specific backend server group.
- When **action** is set to **REDIRECT\_TO\_LISTENER**, the HTTP listener is redirected to an HTTPS listener, and requests are routed by the HTTPS listener.

### Constraints

Currently, only redirects from an HTTP listener to an HTTPS listener are supported. When **action** is set to **REDIRECT\_TO\_LISTENER**, the listener specified by **listener\_id** can only be an HTTP listener, and the listener specified by **redirect\_listener\_id** can only be an HTTPS listener.

The load balancer of the HTTPS listener to which traffic is redirected must be the same as that of the HTTP listener.

### URI

POST /v2.0/lbaas/l7policies

### Request

**Table 5-139** Parameter description

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 5-140</a> . |

**Table 5-140** l7policy parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                   |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id | No        | String | Specifies the ID of the project where the forwarding policy is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters. |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name           | No        | String  | Specifies the forwarding policy name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                            |
| description    | No        | String  | Provides supplementary information about the forwarding policy.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                           |
| listener_id    | Yes       | String  | Specifies the ID of the listener to which the forwarding policy is added. <ul style="list-style-type: none"> <li>When <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, forwarding policies can be added to a listener with <b>protocol</b> set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li> <li>When <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, forwarding policies can be added to a listener with <b>protocol</b> set to <b>HTTP</b>.</li> </ul>                                                              |
| action         | Yes       | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"> <li><b>REDIRECT_TO_POOL:</b><br/>Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li><b>REDIRECT_TO_LISTENER:</b><br/>Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |



| Parameter            | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_pool_id     | No        | String  | <p>Specifies the ID of the backend server group to which traffic is forwarded. The default value is <b>null</b>.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</p> <p>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</p> <p>The backend server group must meet the following requirements:</p> <ul style="list-style-type: none"> <li>• Cannot be the default backend server group of the listener.</li> <li>• Cannot be the backend server group used by forwarding policies of other listeners.</li> </ul> |
| redirect_listener_id | No        | String  | <p>Specifies the ID of the listener to which the traffic is redirected. The default value is <b>null</b>.</p> <p>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, and the listener must meet the following requirements:</p> <ul style="list-style-type: none"> <li>• Can only be an HTTPS listener.</li> <li>• Can only be a listener of the same load balancer.</li> </ul>                                                                                     |
| redirect_url         | No        | String  | <p>Specifies the URL to which traffic is redirected. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| position             | No        | Integer | <p>Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b>. The default value is <b>100</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Parameter | Mandatory | Type  | Description                                                                                                                                                                                                 |
|-----------|-----------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rules     | No        | Array | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 5-141</a> .<br>The list contains a maximum of two rules, and the <b>type</b> parameter of each rule must be unique. |

**Table 5-141** rules parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                             |
| type           | Yes       | String  | Specifies the match type of a forwarding rule.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> The match type of forwarding rules in a forwarding policy must be unique.                                                                                                                                                                                            |
| compare_type   | Yes       | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| invert    | No        | Boolean | Specifies whether reverse match is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| key       | No        | String  | Specifies the key of the match content.<br>The default value is <b>null</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| value     | Yes       | String  | Specifies the value of the match content. The value cannot contain spaces. <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+? ,=!: \\V()[]{}</code></li> </ul> |

## Response

**Table 5-142** Response parameters

| Parameter | Type   | Description                                                                     |
|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Object | Specifies the forwarding policy. For details, see <a href="#">Table 5-143</a> . |

**Table 5-143** l7policy parameter description

| Parameter | Type   | Description                                                          |
|-----------|--------|----------------------------------------------------------------------|
| id        | String | Specifies the forwarding policy ID.                                  |
| tenant_id | String | Specifies the ID of the project where the forwarding policy is used. |

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name                 | String  | Specifies the forwarding policy name.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| admin_state_up       | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                        |
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| rules                | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 5-144</a> .                                                                                                                                                                                                                                                                                                                                                                                                                      |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                       |
| provisioning_status  | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                            |

**Table 5-144** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

## Example Request

- Example request 1: Adding a forwarding policy

POST <https://{{Endpoint}}/v2.0/lbaas/l7policies>

```
{
 "l7policy": {
 "name": "niubiao_yaqing_api-2",
 "listener_id": "3e24a3ca-11e5-4aa3-abd4-61ba0a8a18f1",
 "action": "REDIRECT_TO_POOL",
 "redirect_pool_id": "6460f13a-76de-43c7-b776-4fetc06a676e",
 "rules": [
 {
 "type": "PATH",
 "compare_type": "EQUAL_TO",
 "value": "/test"
 },
 {
 "type": "HOST_NAME",
 "compare_type": "EQUAL_TO",
 "value": "www.test.com"
 }
]
 }
}
```

## Example Response

- Example response 1

```
{
 "l7policy": {
 "redirect_pool_id": "6460f13a-76de-43c7-b776-4fetc06a676e",
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "742600d9-2a14-4808-af69-336883dbb590"
 },
 {
 "id": "3251ed77-0d52-412b-9310-733636bb3fbf"
 }
],
 "tenant_id": "573d73c9f90e48d0bddfa0eb202b25c2",
 "listener_id": "3e24a3ca-11e5-4aa3-abd4-61ba0a8a18f1",
 "redirect_url": null,
 "redirect_listener_id": null,
 "action": "REDIRECT_TO_POOL",
 "position": 100,
 "provisioning_status": "ACTIVE",
 "id": "65d6e115-f179-4bcd-9bbb-1484e5f8ee81",
 "name": "niubiao_yaqing-_api-2"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.6.2 Querying Forwarding Policies

### Function

This API is used to query the forwarding policies. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

### URI

GET /v2.0/lbaas/l7policies

### Request

**Table 5-145** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the forwarding policy from which pagination query starts, that is, the ID of the last forwarding policy on the previous page. This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                 |
| limit        | No        | Integer | Specifies the number of forwarding policies on each page. If this parameter is not set, all forwarding policies are queried by default.                                                                                                                                                                                                                                                                                    |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link. This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                        |

| Parameter                | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id                | No        | String  | Specifies the ID of the project where the forwarding policy is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                  |
| name                     | No        | String  | Specifies the forwarding policy name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| admin_stat<br>e_up       | No        | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                        |
| description              | No        | String  | Provides supplementary information about the forwarding policy.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                       |
| listener_id              | No        | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| action                   | No        | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_po<br>ol_id     | No        | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| redirect_list<br>ener_id | No        | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_url             | No        | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                      |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                     |
|---------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| position            | No        | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                              |
| provisioning_status | No        | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.<br>The value contains a maximum of 16 characters. |
| display_all_rules   | No        | Boolean | Specifies whether to display all forwarding rules added to the forwarding policy.<br>Value options:<br><b>false</b> : Forwarding rules will not be displayed, and only IDs are displayed.<br><b>true</b> : Forwarding rules will be displayed.                  |

## Response

**Table 5-146** Response parameters

| Parameter        | Type  | Description                                                                                                                                                                                                  |
|------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| l7policies       | Array | Lists the forwarding policies. For details, see <a href="#">Table 5-147</a> .                                                                                                                                |
| l7policies_links | Array | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query.<br>For details, see <a href="#">Table 5-149</a> . |

**Table 5-147** l7policy parameter description

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



| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id            | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| name                 | String  | Specifies the forwarding policy name.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| admin_state_up       | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                        |
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| rules                | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 5-144</a> .                                                                                                                                                                                                                                                                                                                                                                                                                      |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                       |

| Parameter           | Type   | Description                                                                                                                                                                                                   |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | String | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved. |

**Table 5-148** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

**Table 5-149** l7policies\_links parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                           |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                    |
| rel       | String | Specifies the prompt of the previous or next page.<br>The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

## Example Request

- Example request 1: Querying all forwarding policies  
GET https://{Endpoint}/v2.0/lbaas/l7policies
- Example request 2: Querying forwarding policies through which requests are forwarded to the backend server group  
GET https://{Endpoint}/v2.0/lbaas/l7policies?action=REDIRECT\_TO\_POOL

## Example Response

- Example response 1
 

```
{
 "l7policies": [
 {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 }
]
 }
]
}
```

```
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
],
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 2,
 "provisioning_status": "ACTIVE",
 "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
 "name": ""
},
{
 "redirect_pool_id": "59eebd7b-c68f-4f8a-aa7f-e062e84c0690",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "f4499f48-de3d-4efe-926d-926aa4d6aaf5"
 }
],
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "e1310063-00de-4867-ab55-ccac4d9db364",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 1,
 "provisioning_status": "ACTIVE",
 "id": "6cfd9d89-1d7e-4d84-ae1f-a8c5ff126f72",
 "name": ""
}
],
"l7policies_links": [
 {
 "href": "https://{Endpoint}/v2.0/lbaas/l7policies/061f461c-c7cf-47ab-9583-09be5076cd09/rules?marker=167c1a31-bc12-4c3d-9ad1-c9bf450df4ce&page_reverse=True",
 "rel": "previous"
 }
]
}
```

- Example response 2

```
{
 "l7policies": [
 {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
]
 },
 {
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 2,
 "provisioning_status": "ACTIVE",
 "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
 "name": ""
 }
],
 "l7policies_links": [
 {
 "href": "https://{Endpoint}/v2.0/lbaas/l7policies/061f461c-c7cf-47ab-9583-09be5076cd09/rules?marker=167c1a31-bc12-4c3d-9ad1-c9bf450df4ce&page_reverse=True",
 "rel": "previous"
 }
]
}
```

```

"redirect_pool_id": "59eebd7b-c68f-4f8a-aa7f-e062e84c0690",
"redirect_listener_id": null,
"description": "",
"admin_state_up": true,
"rules": [
 {
 "id": "f4499f48-de3d-4efe-926d-926aa4d6aaf5"
 }
],
"tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

"listener_id": "e1310063-00de-4867-ab55-ccac4d9db364",
"redirect_url": null,
"action": "REDIRECT_TO_POOL",
"position": 1,
"provisioning_status": "ACTIVE",
"id": "6cfd9d89-1d7e-4d84-ae1f-a8c5ff126f72",
"name": ""
}
],
"l7policies_links": [
 {
 "href": "https://{Endpoint}/v2.0/lbaas/l7policies/061f461c-c7cf-47ab-9583-09be5076cd09/rules?marker=167c1a31-bc12-4c3d-9ad1-c9bf450df4ce&page_reverse=True",
 "rel": "previous"
 }
]
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.6.3 Querying Details of a Forwarding Policy

### Function

This API is used to query details about a forwarding policy.

### URI

GET /v2.0/lbaas/l7policies/{l7policy\_id}

**Table 5-150** Parameter description

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

### Request

None

## Response

**Table 5-151** Parameter description

| Parameter | Type   | Description                                                                     |
|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Object | Specifies the forwarding policy. For details, see <a href="#">Table 5-152</a> . |

**Table 5-152** l7policy parameter description

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id                   | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| tenant_id            | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| name                 | String  | Specifies the forwarding policy name.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| admin_state_up       | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                        |
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Parameter           | Type    | Description                                                                                                                                                                                                   |
|---------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_url        | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                              |
| rules               | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 5-144</a> .                                                                                                           |
| position            | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                            |
| provisioning_status | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved. |

**Table 5-153** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

## Example Request

- Example request: Querying details of a forwarding policy  
GET https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586

## Example Response

- Example response
 

```
{
 "l7policy": {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
]
 },
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
 "redirect_url": null,
 "provisioning_status": "ACTIVE",
 "action": "REDIRECT_TO_POOL",
 "position": 1,
}
```

```

 "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
 "name": "l7policy-garry-1"
 }
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.6.4 Updating a Forwarding Policy

### Function

This API is used to update a forwarding policy. You can select another backend server group or redirect to another HTTPS listener.

### URI

PUT /v2.0/lbaas/l7policies/{l7policy\_id}

**Table 5-154** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | Object | Specifies the forwarding policy ID. |

### Request

**Table 5-155** Parameter description

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 5-156</a> . |

**Table 5-156** l7policy parameter description

| Parameter | Mandatory | Type   | Description                                                                           |
|-----------|-----------|--------|---------------------------------------------------------------------------------------|
| name      | No        | String | Specifies the forwarding policy name. The value contains a maximum of 255 characters. |

| Parameter            | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description          | No        | String  | Provides supplementary information about the forwarding policy.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| redirect_pool_id     | No        | String  | Specifies the ID of the backend server group to which traffic is forwarded. The default value is <b>null</b> .<br>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .<br>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> .<br>The backend server group must meet the following requirements: <ul style="list-style-type: none"> <li>• Cannot be the default backend server group of the listener.</li> <li>• Cannot be the backend server group used by forwarding policies of other listeners.</li> </ul> |
| redirect_listener_id | No        | String  | Specifies the ID of the listener to which the traffic is redirected. The default value is <b>null</b> .<br>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> .<br>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> . The listener must meet the following requirements: <ul style="list-style-type: none"> <li>• Can only be an HTTPS listener.</li> <li>• Can only be a listener of the same load balancer.</li> </ul>                                                                                     |
| admin_state_up       | No        | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                     |



## Response

**Table 5-157** Response parameters

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 5-158</a> . |

**Table 5-158** l7policy parameter description

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id                   | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| tenant_id            | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| name                 | String  | Specifies the forwarding policy name.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| admin_state_up       | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                        |
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| Parameter           | Type    | Description                                                                                                                                                                                                   |
|---------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_url        | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                              |
| rules               | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 5-144</a> .                                                                                                           |
| position            | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                            |
| provisioning_status | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved. |

**Table 5-159** rules parameter description

| Parameter | Type   | Description                                                     |
|-----------|--------|-----------------------------------------------------------------|
| id        | String | Lists the IDs of the forwarding rules in the forwarding policy. |

## Example Request

- Example request: Updating a forwarding policy

PUT <https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586>

```
{
 "l7policy": {
 "name": "test"
 }
}
```

## Example Response

- Example response

```
{
 "l7policy": {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
]
 }
}
```

```

"tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

"listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
"redirect_url": null,
"action": "REDIRECT_TO_POOL",
"provisioning_status": "ACTIVE",
"position": 2,
"id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
"name": "test"
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.6.5 Deleting a Forwarding Policy

### Function

This API is used to delete a specific forwarding policy.

### URI

DELETE /v2.0/lbaas/l7policies/{l7policy\_id}

**Table 5-160** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | Object | Specifies the forwarding policy ID. |

### Request

None

### Response

None

### Example Request

- Example request: Deleting a forwarding policy  
DELETE https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586

### Example Response

- Example response  
None

### Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.7 Forwarding Rule

### 5.7.1 Adding a Forwarding Rule

#### Function

This API is used to add a forwarding rule. After you add a forwarding rule, the load balancer matches the domain name and path in the request and distributes the traffic to the backend server group specified by **redirect\_pool\_id** of the associated forwarding policy.

#### Constraints

The match type of forwarding rules in a forwarding policy must be unique.

#### URI

POST /v2.0/lbaas/l7policies/{l7policy\_id}/rules

**Table 5-161** Parameter description

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

#### Request

**Table 5-162** Parameter description

| Parameter | Mandatory | Type   | Description                                                                   |
|-----------|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Yes       | Object | Specifies the forwarding rule. For details, see <a href="#">Table 5-163</a> . |

**Table 5-163 rule parameter description**

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | <p>Specifies the ID of the project where the forwarding rule is used.</p> <p>The value must be the same as the value of <b>project_id</b> in the token.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                          |
| admin_state_up | No        | Boolean | <p>Specifies the administrative status of the forwarding rule.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                |
| type           | Yes       | String  | <p>Specifies the match type of a forwarding rule.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> <p>The match type of forwarding rules in a forwarding policy must be unique.</p>                                                                                                                                                                                                                                 |
| compare_type   | Yes       | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| invert    | No        | Boolean | Specifies whether reverse match is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| key       | No        | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| value     | Yes       | String  | Specifies the value of the match content. The value cannot contain spaces.<br>The value contains a maximum of 128 characters. <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!:  \() [] {}</code></li> </ul> |

## Response

**Table 5-164** Response parameters

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 5-165</a> . |

**Table 5-165 rule** parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                             |
| type           | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>● <b>PATH</b>: matches the path in the request.</li> </ul>                                                                                                                                                                                                                                                                                                             |
| compare_type   | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>● <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>● <b>REGEX</b>: indicates regular expression match.</li> <li>● <b>STARTS_WITH</b>: indicates prefix match.</li> <li>● <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |
| invert         | Boolean | Specifies whether reverse match is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                          |
| key            | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value               | String | <p>Specifies the value of the match content. The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!:  \()[]{}</code></li> </ul> |
| provisioning_status | String | <p>Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>. The default value is <b>ACTIVE</b>. This parameter is reserved. The value contains a maximum of 16 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Example Request

- Example request: Adding a forwarding rule  
POST <https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules>

```
{
 "rule": {
 "compare_type": "EQUAL_TO",
 "type": "PATH",
 "value": "/bbb.html"
 }
}
```

## Example Response

- Example response
 

```
{
 "rule": {
 "compare_type": "EQUAL_TO",
 "admin_state_up": true,
 "provisioning_status": "ACTIVE",
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "/bbb.html",
 "key": null,
 "type": "PATH",
 "id": "c6f457b8-bf6f-45d7-be5c-a3226945b7b1"
 }
}
```



## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.7.2 Querying Forwarding Rules

### Function

This API is used to query forwarding rules. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

### URI

GET /v2.0/lbaas/l7policies/{l7policy\_id}/rules

**Table 5-166** Parameter description

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

### Request

**Table 5-167** Parameter description

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                               |
|-----------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String  | Specifies the ID of the forwarding rule from which pagination query starts, that is, the ID of the last forwarding rule on the previous page.<br>This parameter must be used together with <b>limit</b> . |
| limit     | No        | Integer | Specifies the number of forwarding rules on each page. If this parameter is not set, all forwarding rules are queried by default.                                                                         |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| page_reverse   | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id             | No        | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                                 |
| tenant_id      | No        | String  | Specifies the ID of the project where the forwarding rule is used.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                         |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br><br>The value can be <b>true</b> or <b>false</b> .<br><br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                           |
| type           | No        | String  | Specifies the match type of a forwarding rule.<br><br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul><br>The match type of forwarding rules in a forwarding policy must be unique.                                                                                  |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type | No        | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                             |
| invert       | No        | Boolean | <p>Specifies whether reverse match is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| key          | No        | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| value        | No        | String  | <p>Specifies the value of the match content.</p> <p>The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!: \\() [] {}</code></li> </ul> |

| Parameter           | Mandatory | Type   | Description                                                                                                                                                                                                                                          |
|---------------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | No        | String | Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> . The default value is <b>ACTIVE</b> . This parameter is reserved. The value contains a maximum of 16 characters. |

## Response

**Table 5-168** Response parameters

| Parameter   | Type  | Description                                                                                                                                                                                            |
|-------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rules       | Array | Lists the forwarding rules. For details, see <a href="#">Table 5-169</a> .                                                                                                                             |
| rules_links | Array | Provides links to the previous or next page during pagination query, respectively. This parameter exists only in the response body of pagination query. For details, see <a href="#">Table 5-170</a> . |

**Table 5-169** rules parameter description

| Parameter      | Type    | Description                                                                                                                                                               |
|----------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                         |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used. The value contains a maximum of 255 characters.                                                        |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule. The value can be <b>true</b> or <b>false</b> . This parameter is reserved. The default value is <b>true</b> . |

| Parameter    | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type         | String  | Specifies the match type of a forwarding rule. The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| compare_type | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                               |
| invert       | Boolean | Specifies whether reverse match is supported. The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| key          | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| value        | String  | Specifies the value of the match content. The value contains a maximum of 128 characters. <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!:  \() [] {}</code></li> </ul> |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                   |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | String | Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.<br>The value contains a maximum of 16 characters. |

**Table 5-170** rules\_links parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                           |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                    |
| rel       | String | Specifies the prompt of the previous or next page.<br>The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

### Example Request

- Example request: Querying all forwarding rules of a specific forwarding policy  
GET https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules

### Example Response

- Example response

```
{
 "rules": [
 {
 "compare_type": "EQUAL_TO",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "www.test.com",
 "key": null,
 "type": "HOST_NAME",
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "compare_type": "EQUAL_TO",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "/aaa.html",
 "key": null,

```

```

 "type": "PATH",
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
]
 "rules_links": [
 {
 "href": "https://{Endpoint}/v2.0/lbaas/l7policies/061f461c-c7cf-47ab-9583-09be5076cd09/rules?
marker=167c1a31-bc12-4c3d-9ad1-c9bf450df4ce&page_reverse=True",
 "rel": "previous"
 }
]
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.7.3 Querying Details of a Forwarding Rule

### Function

This API is used to query details about a forwarding rule using its ID.

### URI

GET /v2.0/lbaas/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 5-171** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |
| l7rule_id   | Yes       | String | Specifies the forwarding rule ID.   |

### Request

None

### Response

**Table 5-172** Response parameters

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 5-173</a> . |

**Table 5-173 rule** parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                             |
| type           | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>● <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>● <b>PATH</b>: matches the path in the request.</li> </ul>                                                                                                                                                                                                                                                                                                             |
| compare_type   | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>● <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>● <b>REGEX</b>: indicates regular expression match.</li> <li>● <b>STARTS_WITH</b>: indicates prefix match.</li> <li>● <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |
| invert         | Boolean | Specifies whether reverse match is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                          |
| key            | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                |



| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value               | String | <p>Specifies the value of the match content. The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!:  \()[]{}</code></li> </ul> |
| provisioning_status | String | <p>Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>. The default value is <b>ACTIVE</b>. This parameter is reserved. The value contains a maximum of 16 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### Example Request

- Example request: Querying details of a forwarding rule  
GET `https://[Endpoint]/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3`

### Example Response

- Example response
 

```
{
 "rule": {
 "compare_type": "EQUAL_TO",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "/index.html",
 "key": null,
 "type": "PATH",
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 }
}
```

### Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.7.4 Updating a Forwarding Rule

### Function

This API is used to update a forwarding rule. You can change the mode that how traffic is distributed by updating the forwarding rule.

### URI

PUT /v2.0/lbaas/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 5-174** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |
| l7rule_id   | Yes       | String | Specifies the forwarding rule ID.   |

### Request

**Table 5-175** Parameter description

| Parameter | Mandatory | Type   | Description                                                                   |
|-----------|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Yes       | Object | Specifies the forwarding rule. For details, see <a href="#">Table 5-176</a> . |

**Table 5-176 rule parameter description**

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type   | No        | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |
| admin_state_up | No        | Boolean | <p>Specifies the administrative status of the forwarding rule.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                |
| invert         | No        | Boolean | <p>Specifies whether reverse match is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                             |
| key            | No        | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | No        | String | <p>Specifies the value of the match content. The value cannot contain spaces.</p> <p>The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!:  \() [] {}</code></li> </ul> |

## Response

Table 5-177 Response parameters

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 5-178</a> . |

Table 5-178 rule parameter description

| Parameter      | Type    | Description                                                                                                                                                                                  |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                            |
| tenant_id      | String  | <p>Specifies the ID of the project where the forwarding rule is used.</p> <p>The value contains a maximum of 255 characters.</p>                                                             |
| admin_state_up | Boolean | <p>Specifies the administrative status of the forwarding rule.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p> |

| Parameter    | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type         | String  | Specifies the match type of a forwarding rule.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| compare_type | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                                  |
| invert       | Boolean | Specifies whether reverse match is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| key          | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| value        | String  | Specifies the value of the match content.<br>The value contains a maximum of 128 characters. <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~'!:@^-%#&amp;\$.*+?;=:  \() [] {}</code></li> </ul> |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                   |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | String | Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.<br>The value contains a maximum of 16 characters. |

## Example Request

- Example request: Updating a forwarding rule  
PUT https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/c6f457b8-bf6f-45d7-be5c-a3226945b7b1  

```
{
 "rule": {
 "compare_type": "STARTS_WITH",
 "value": "/ccc.html"
 }
}
```

## Example Response

- Example response  

```
{
 "rule": {
 "compare_type": "STARTS_WITH",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faadb058e1e08819",

 "invert": false,
 "value": "/ccc.html",
 "key": null,
 "type": "PATH",
 "id": "c6f457b8-bf6f-45d7-be5c-a3226945b7b1"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.7.5 Deleting a Forwarding Rule

### Function

This API is used to delete a specific forwarding rule.

### URI

DELETE /v2.0/lbaas/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 5-179** Parameter description

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |
| l7rule_id   | Yes       | String | Specifies the forwarding rule ID.   |

## Request

None

## Response

None

## Example Request

- Example request: Deleting a forwarding rule  
DELETE https://{Endpoint}/v2.0/lbaas/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/c6f457b8-bf6f-45d7-be5c-a3226945b7b1

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 5.8 Whitelist

## 5.8.1 Adding a Whitelist

### Function

This API is used to add a whitelist to control access to a specific listener. After a whitelist is added, only IP addresses in the whitelist can access the listener.

### URI

POST /v2.0/lbaas/whitelists

## Request

**Table 5-180** Parameter description

| Parameter | Mandatory | Type   | Description                                                             |
|-----------|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Yes       | Object | Specifies the whitelist. For details, see <a href="#">Table 5-181</a> . |

**Table 5-181** whitelist parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                             |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id        | No        | String  | Specifies the ID of the project where the whitelist is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br>The value contains a maximum of 255 characters.                                                                                                       |
| listener_id      | Yes       | String  | Specifies the listener ID.<br>Only one whitelist can be created for a listener.                                                                                                                                                                                                                         |
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled.<br>The default value is <b>true</b> .                                                                                                                             |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist. Use commas (,) to separate multiple IP addresses.<br><br>You can specify an IP address, for example, 192.168.11.1.<br><br>You can also specify an IP address range, for example, 192.168.0.1/24.<br><br>The default value is an empty string, that is, "". |



## Response

**Table 5-182** Response parameters

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 5-183</a> . |

**Table 5-183** whitelist parameter description

| Parameter        | Type    | Description                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                           |
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                       |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Example Request

- Example request: Adding a whitelist  
POST `https://{Endpoint}/v2.0/lbaas/whitelists`

```
{
 "whitelist": {
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Example Response

- Example response

```
{
 "whitelist": {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.8.2 Querying Whitelists

### Function

This API is used to query the whitelists. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

### URI

GET /v2.0/lbaas/whitelists

### Request

**Table 5-184** Parameter description

| Parameter    | Mandator<br>y | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|---------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No            | String  | Specifies the ID of the whitelist from which pagination query starts, that is, the ID of the last whitelist on the previous page. This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                                 |
| limit        | No            | Integer | Specifies the number of whitelists on each page. If this parameter is not set, all whitelists are queried by default.                                                                                                                                                                                                                                                                                                      |
| page_reverse | No            | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link. This parameter must be used together with <b>limit</b> . |

| Parameter        | Mandatory | Type    | Description                                                                                                                         |
|------------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------|
| id               | No        | String  | Specifies the whitelist ID.                                                                                                         |
| tenant_id        | No        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                     |
| listener_id      | No        | String  | Specifies the ID of the listener to which the whitelist is added.                                                                   |
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><b>true:</b> Access control is enabled.<br><b>false:</b> Access control is disabled. |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist.                                                                                        |

## Response

**Table 5-185** Response parameters

| Parameter        | Type  | Description                                                                                                                                                                                                  |
|------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| whitelists       | Array | Lists the whitelists. For details, see <a href="#">Table 5-186</a> .                                                                                                                                         |
| whitelists_links | Array | Provides links to the previous or next page during pagination query, respectively.<br>This parameter exists only in the response body of pagination query.<br>For details, see <a href="#">Table 5-187</a> . |

**Table 5-186** whitelist parameter description

| Parameter   | Type   | Description                                                                                                     |
|-------------|--------|-----------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the whitelist ID.                                                                                     |
| tenant_id   | String | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters. |
| listener_id | String | Specifies the ID of the listener to which the whitelist is added.                                               |

| Parameter        | Type   | Description                                                                                                                           |
|------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------|
| enable_whitelist | Bool   | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String | Specifies the IP addresses in the whitelist.                                                                                          |

**Table 5-187 whitelists\_links** parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                           |
|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String | Provides links to the previous or next page during pagination query, respectively.                                                                                                                                                                                    |
| rel       | String | Specifies the prompt of the previous or next page.<br>The value can be <b>next</b> or <b>previous</b> . The value <b>next</b> indicates the href containing the URL of the next page, and <b>previous</b> indicates the href containing the URL of the previous page. |

### Example Request

- Example request 1: Querying all whitelists  
GET https://{Endpoint}/v2.0/lbaas/whitelists
- Example request 2: Querying the whitelists added to listener eabfefa3fd1740a88a47ad98e132d230  
GET https://{Endpoint}/v2.0/lbaas/whitelists?listener\_id=eabfefa3fd1740a88a47ad98e132d230

### Example Response

- Example response 1
 

```
{
 "whitelists": [
 {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 },
 {
 "id": "eabfefa3fd1740a88a47ad98e132d326",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d327",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d436",
 "enable_whitelist": true,
 "whiltelist": "192.168.12.1,192.168.1.1/24,192.168.203.18/8,100.164.5.1/24"
 }
]
}
```
- Example response 2
 

```
{
 "whitelists": [
 {
```

```

 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d230",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d239",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 },
 {
 "id": "eabfefa3fd1740a88a47ad98e132d326",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d327",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d439",
 "enable_whitelist": true,
 "whitelist": "192.168.12.1,192.168.1.1/24,192.168.203.18/8,100.164.5.1/24"
 }
]
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.8.3 Querying Details of a Whitelist

### Function

This API is used to query details about a whitelist using its ID.

### URI

GET /v2.0/lbaas/whitelists/{whitelist\_id}

**Table 5-188** Parameter description

| Parameter    | Mandatory | Type   | Description                 |
|--------------|-----------|--------|-----------------------------|
| whitelist_id | Yes       | String | Specifies the whitelist ID. |

### Request

None

### Response

**Table 5-189** Response parameters

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 5-190</a> . |

**Table 5-190 whitelist** parameter description

| Parameter        | Type    | Description                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                           |
| tenant_id        | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                 |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Example Request

- Example request: Querying details of a whitelist  
GET `https://{Endpoint}/v2.0/lbaas/whitelists/09e64049-2ab0-4763-a8c5-f4207875dc3e`

## Example Response

- Example response

```
{
 "whitelist": {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.8.4 Updating a Whitelist

### Function

This API is used to update a whitelist. You can enable or disable the whitelist function or update IP addresses in the whitelist.

### URI

PUT `/v2.0/lbaas/whitelists/{whitelist_id}`

**Table 5-191** Parameter description

| Parameter    | Mandatory | Type   | Description                 |
|--------------|-----------|--------|-----------------------------|
| whitelist_id | Yes       | String | Specifies the whitelist ID. |

## Request

**Table 5-192** Parameter description

| Parameter | Mandatory | Type   | Description                                                             |
|-----------|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Yes       | Object | Specifies the whitelist. For details, see <a href="#">Table 5-193</a> . |

**Table 5-193** whitelist parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                 |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><b>true:</b> Access control is enabled.<br><b>false:</b> Access control is disabled.<br>The default value is <b>true</b> .                                                                                                                   |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist. Use commas (,) to separate multiple IP addresses.<br>You can specify an IP address, for example, 192.168.11.1.<br>You can also specify an IP address range, for example, 192.168.0.1/24.<br>The default value is an empty string, that is, "". |

## Response

**Table 5-194** Parameter description

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 5-195</a> . |

**Table 5-195 whitelist** parameter description

| Parameter        | Type    | Description                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                           |
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                       |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Example Request

- Example request: Updating a whitelist

```
PUT https://{Endpoint}/v2.0/lbaas/whitelists/dcaf46f1-037c-4f63-a31f-e0c4c18032c7
```

```
{
 "whitelist": {
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Example Response

- Example response

```
{
 "whitelist": {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.8.5 Deleting a Whitelist

### Function

This API is used to delete a specific whitelist.



## URI

DELETE /v2.0/lbaas/whitelists/{whitelist\_id}

**Table 5-196** Parameter description

| Parameter    | Mandatory | Type   | Description                 |
|--------------|-----------|--------|-----------------------------|
| whitelist_id | Yes       | String | Specifies the whitelist ID. |

## Request

None

## Response

None

## Example Request

- Example request: Deleting a whitelist  
DELETE https://{Endpoint}/v2.0/lbaas/whitelists/35cb8516-1173-4035-8dae-0dae3453f37f

## Example Response

- Example response 1  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 5.9 Certificate

## 5.9.1 Creating a Certificate

### Function

This API is used to create a certificate. After a certificate is bound to a listener, the load balancer authenticates the client using this certificate, and backend servers can establish secure and reliable HTTP connections with the client.

## URI

POST /v2.0/lbaas/certificates

## Request

**Table 5-197** Parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                     |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | Specifies the ID of the project where the certificate is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                                         |
| admin_state_up | No        | Boolean | Specifies the administrative status of the certificate.<br><br>The value can be <b>true</b> or <b>false</b> .<br><br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                 |
| name           | No        | String  | Specifies the certificate name.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                          |
| description    | No        | String  | Provides supplementary information about the certificate.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                |
| type           | No        | String  | Specifies the certificate type. The default value is <b>server</b> .<br><br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul> |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain      | No        | String | <p>Specifies the domain name associated with the server certificate. The default value is <b>null</b>.</p> <p>The value contains a maximum of 100 characters.</p> <p>The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• A common domain name contains 0 to 100 characters and consists of several strings separated by periods (.). Each string can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li> <li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*).</li> </ul> <p><b>NOTE</b><br/>This parameter is valid only when <b>type</b> is set to <b>server</b>.</p> |
| private_key | No        | String | <p>Specifies the private key of the server certificate.</p> <p>The private key is in PEM format.</p> <p><b>NOTE</b><br/>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| certificate | Yes       | String | <p>Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required.</p> <p>The public key is in PEM format.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

## Response

**Table 5-198** Parameter description

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

| Parameter      | Type    | Description                                                                                                                                                                                                                                           |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                                     |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .                                                                                                                                             |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                    |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                          |
| type           | String  | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul>                |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                  |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                    |
| certificate    | String  | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time    | String  | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                             |
| create_time    | String  | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                         |

| Parameter   | Type   | Description                                                                                                   |
|-------------|--------|---------------------------------------------------------------------------------------------------------------|
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |

## Example Request

- Example request: Creating a certificate

POST https://{Endpoint}/v2.0/lbaas/certificates

```
{
 "name": "https_certificate",
 "description": "description for certificate",
 "type": "server",
 "domain": "www.elb.com",
 "private_key":
 "-----BEGIN PRIVATE KEY-----
 \nMIIEvglBADANBgkqhkiG9w0BAQEFAASCBAgEAAoIBAQDQVAbOLe5xNf4M
 \n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcJ8KcN1nfzTvl2ksXITQ2o9BkpStnPe\ntB4s32ZiJRMlk
 +61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
 \nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8Icq39buNplgDOWzEP5AzaqXt
 \nCOFYn6RTH5SRug4hKNN7sT1eYMsLHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl\nZAPYUBkl/
 0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k\nEo04Z9H/
 AgMBAAEAggEAEleaQqHCWZk/HyYN0Am/GJSgFa2tD60SXY2fUieh8/Hl
 \nfvCArftGgMaYWPSNCRJMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
 \nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
 \nciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
 \nEGpfYI6AdHlwFzCT/RNAxhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale\nkrguPtFv1vWklg
 +bUfhgGaiAEYtpAUN9t2DVIiijgQKBgQDnYMMsaF0r557CM1CT
 \nXUqgCZo8MKeV2jf2drLxRRwRl33SksQbzAQ/qrLdT7Gp3CGqvkxWY2FPdFYf8kx
 \nGcCeZPcleZYQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjipJ7dt
 \n7n8EzkRUNE6alMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
 \niWgTWHXPZxUQaYhpjXo6+IMl6DpExiDgBAkMzJGlV57yQiYWU+wthAr9urbWYdGZ
 \nIS6VjoTkF6r7VZoLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNdrfPHB5utBU
 \nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
 \n1lVQhELG9CbKSDzKM71GyElmix/T7FnJSHIwLho1qVo6AQyduNWnAQD15pr8KAd
 \nXGXAZZ1FQcb3KYa+2fflERmazedOTwjY20tGqZnXkEeMdSLkmlCRigWhGQKBgDak\n/
 735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocDxtY4Vha\nfl7FPMDvGl8ioYbvlHFHf
 +X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
 \n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4Ctfk9o
 \nhjHjWB7pQlUYpTZO9dm+4fpcMn9Okf43AE2yAOaAP94GdzdJkxfciXKcsYr9IluK
 \nfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQ038a5gZaOm/BUIGKMWXzuEd\n3fy
 +1rCUwzOp9LSjtYf4ege\n-----END PRIVATE KEY-----",
 "certificate":
 "-----BEGIN CERTIFICATE-----
 \nMII4TCCAcmgAwIBAgIcERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMmTXID
 \nb21wYW55IENBM4XDTE4MDcwMjEzZmU0N1oXDTQ1MTExNzEzZmU0N1owFDESMBAG
 \nA1UEAwJbG9yYXxob3N0MIIlBlANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAn0FQGi3ucTX
 +DNud1p/
 b4XVM6i3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDb
 B8CtIgv+eyU9yYJstWx/
 Bm5kWNPh9\n7B9Yu9pbb2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
 \nIaZlsxD+QM6l7QhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
 \ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPILZUUn7yw3nkOOTLMl28IEv0WY
 \nyd7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
 \nhwQKuUvJhwr/AAABMBMGAA1UdJQMMAoGCCsGAQUFBwMBMAoGCsGSIb3DQEBCwUA
 \nA4lBAQA8IMQJxaTey7EjXtRSLVIEAMftAQPG6jjjNQuvIBQYUDauDT4W2XUz5wAn
 \njiOyQ83va672K1G9s8n6xLH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
 \nezzmzCwQYtHBMVQ4c7Ml8554Ft1mWst4dMAK2rzNjyPRLYlp1HMn16hkjPk4PCZ
 \nwKna0dlScati9Cct3UzXSNJOSLalKdHrH08lqd+1BchScxChk0xNITn1HZZGml\n
 +vbmunok3A2lucl14nrsrckGyqXGikySN6B2cRLBDK4Y3wChiW6NVVtVqcx5/mZ\niYsGDVN
 +9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----"
}
```

## Example Response

- Example response

```
{
 "domain": "www.elb.com",
 "expire_time": "2045-11-17 13:25:47",
 "update_time": "2017-12-04 06:49:13",
 "create_time": "2017-12-04 06:49:13",
 "id": "3d8a7a02f87a40ed931b719edfe75451",
 "admin_state_up": true,
 "private_key": "-----BEGIN PRIVATE KEY-----
\nMIIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetv4J+B7KYwsMhRcgdcJ8KCnX1nfzTvl2ksXLTQ2o9BkpStnPe\
+61iUUMNShwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AqzXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMsIHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl\
0XuTWRg3CohPPcl+UtlRSfvlDeeQ460swjbgwS/RbJh3slwCRLU08k\nEo04Z9H/
AgMBAAEcGgEAElEaQqHCWZk/HyYN0Am/GJSgFa2tD60SXY2fUieh8/HL
\nfvCArftGgMaYWPSNCRJMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vE59LMhHkNKKr
\nciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
\nEGpfYI6AdHIwFzCT/RNAxhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale\
+nkrquPtfV1vWklg
+bUfhgGaiAEYTPAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCZ08MKeV2jf2drLxRRwRL33SksQbzAQ/qrLd7GP3sCGqvkvWY2FPdFyf8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjipj7dt
\nj7n8EzkRUNE6alMHOFEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\nniWgTWHXPZxUQaYhpiXo6+LMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTf6r7VZolLXX0fbuXh6lm8K8lQRfBpJff56p9pMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELG9CbKSDzKM71GyElmix/T7FnJSHIwLho1qVo6AQyduNwNAQD15pr8KAd
\nhXGAZZ1FQcb3KYa+2fflERmazedOTwYz0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak\
735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha\
nfl7FPMDvGl8ioYbvlHFHf
+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54Pw4Ctfk9o
\njhHjWB7pQIUypTZO9dm+4fcmN9Okf43AE2yAOaAP94GdzdJkxkfcIKcsYr9lluk
\nfaoXgJKR7p1zERiWZuFF635B4aiyX1H7X0MwHDZQO38a5gZaOm/BUlGKMwZuEd\
n3fy
+1rCUwzOp9LSjtYf4ege\n-----END PRIVATE KEY-----",
 "tenant_id": "930600df07ac4f66964004041bd3deaf",
 "type": "server",
 "certificate": "-----BEGIN CERTIFICATE-----
\nMIIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
\nb21wYW55IENBMBA4XDTE4MDcwMjEzMDU0N1oXDTQ1MTE5NzEzMDU0N1owFDESMBAG
\nA1UEAwWJbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAn0FQGi3ucTX
+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nu0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDb
B8Ctgv+eyU9yYJstWx/
Bm5kWNPh9\n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\nny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOotLMI28IEv0WY
\nYd7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpbk21haW4uY29t
\nnhwQKuUvJhwr/AAABMBMGA1UdJQMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBCwUA
\nA4IBAQA8IMQJxaTey7EjXtRlSVIEAMftAQP6GjjNQuviBQYUDauDT4W2XUZ5wAn
\nnjiOyQ83va672K1G9s8n6xIH+xwwdSNnozaKzC87vwSeZKIOdl9I5198TGKI6OoDa
\nnezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYlp1HMnl6hkjPk4PCZ
\nnwKha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml\n
+vbmunok3A2luc14rnsrckGyqxGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----",
 "name": "https_certificate",
 "description": "description for certificate"
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.9.2 Querying Certificates

### Function

This API is used to query all the certificates. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

### URI

GET /v2.0/lbaas/certificates

### Request

**Table 5-199** Parameter description

| Parameter    | Mandator<br>y | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------|---------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No            | String  | Specifies the ID of the certificate from which pagination query starts, that is, the ID of the last certificate on the previous page.<br>This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                             |
| limit        | No            | Integer | Specifies the number of certificates on each page. If this parameter is not set, all certificates are queried by default.                                                                                                                                                                                                                                                                                                     |
| page_reverse | No            | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used together with <b>limit</b> . |
| id           | No            | String  | Specifies the certificate ID.                                                                                                                                                                                                                                                                                                                                                                                                 |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name        | No        | String | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| description | No        | String | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| type        | No        | String | Specifies the certificate type. The default value is <b>server</b> .<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| domain      | No        | String | Specifies the domain name associated with the server certificate. The default value is <b>null</b> .<br>The value contains a maximum of 100 characters.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• A common domain name contains 0 to 100 characters and consists of several strings separated by periods (.). Each string can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li> <li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*).</li> <li>• This parameter is valid only when <b>type</b> is set to <b>server</b>.</li> </ul> |
| private_key | No        | String | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |



| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                           |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| certificate | No        | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| create_time | No        | String | Specifies the time when the certificate was created. The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                            |
| update_time | No        | String | Specifies the time when the certificate was updated. The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                            |

## Response

**Table 5-200** Parameter description

| Parameter    | Type    | Description                                                            |
|--------------|---------|------------------------------------------------------------------------|
| certificates | Array   | Lists the certificates. For details, see <a href="#">Table 5-201</a> . |
| instance_num | Integer | Specifies the number of certificates.                                  |

**Table 5-201 certificates** parameter description

| Parameter      | Type    | Description                                                                                                    |
|----------------|---------|----------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                  |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used. The value contains a maximum of 255 characters. |
| admin_state_up | Boolean | Specifies the administrative status of the certificate. The value can be <b>true</b> or <b>false</b> .         |

| Parameter   | Type   | Description                                                                                                                                                                                                                                           |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name        | String | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                    |
| description | String | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                          |
| type        | String | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul>                |
| domain      | String | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                  |
| private_key | String | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                    |
| certificate | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time | String | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                             |
| create_time | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                         |
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                         |

## Example Request

- Request example 1: Querying all certificates  
GET <https://{Endpoint}/v2.0/lbaas/certificates>

- Example 2: Querying a certificate whose ID is ef4d341365754a959556576501791b19 or ed40e8ea9957488ea82de025e35b74c0

```
GET https://{Endpoint}/v2.0/lbaas/certificates?
id=ef4d341365754a959556576501791b19&id=ed40e8ea9957488ea82de025e35b74c0
```

## Example Response

- Example response 1

```
{
 "certificates": [
 {
 "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgIcEREWdQYJKoZIhvcNAQELBQAwwFzEVMBMGA1UEAxMMTXID
\nb21wYW51ENBMB4XDTE4MDcwMjEzMDU0N1oXDTE4MTExNzEzMDU0N1owFDESMBAG
\nA1UEAwJbG9jYWxob3N0MIIlBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAn0FQZi3ucTX
+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYlFDDb
B8CtIgv+eyU9yYJstWx/
Bm5kWNPh9\n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyYKy4zgnv1tn/K
\ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOTLMI28IEv0WY
\nYd7CMJQkS1NPJBKNOGFR/wIDAQABozowODAhBgNVHREEGjAYGgpkb21hW4uY29t
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- Example response 2

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Uk/eiFr3hfH/ZohMfV5p82Qp7DNIGRzW8YtVG/3+vNXrAXW1VhugNhQY6L+zLjC
aKn84ooup0m3YCg0hvlNqluvzfsuzQgtjTXyaE0cEwsjUusOmiuj09vVx/3U7siK
Hdj2ICPCvQ6Q8tdi8jV320gMs05AtaBkZdsiWUCgYEAtLw4Kk4f+xTKDFsrLUNf
75wcqhWVBiwBp7yQ7UX4EysJPKZcHMRTk0EEcAbpyaJZE3i44vjp5ReXIHNLmfPs
uvl34J4Rfot0LN3n7cFrAi2+wpNo+MOBwrNzpRmijGP2uKKrq4JiMjFbKV/6utGF
Up7Vxfws904JYpqGaZctiECgYA1A6nZtF0riY6ry/uAdXpZHL8ONNqRzTWOt0kD
79otSVu5iSiRbaGcXsDExC52oKrSDAgFtbqQUiEOFG09UcXfoR6HwRkba2CiDwve
yHQLQI5QRdxz8Mk0glrNrSM4FamcW9vi9z4kCbQyoC5C+4gqeUURpDikQBWP2Y4
2ct/bQKbGhV8qCsQTZphOxc31BJPa2xVhuv18cEU3XLURVfUZ/1f43JhLp7gynS2
ep++LkUi9D0VGXY8bqvfljbeCoCeu85vl8NpCXwe/LoVoln+7KaVIZMwqoGMfngl
nEqm7HwKnxHhf8A6En/ljleuddS1sf9e/x+TJN1Xhnt9W6pe7Fk1
-----END RSA PRIVATE KEY-----",
 "update_time": "2018-09-28 03:00:47",
 "admin_state_up": true,
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "expire_time": "2020-12-03 03:42:49"
 }
],
"instance_num": 2
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.9.3 Querying Details of a Certificate

### Function

This API is used to query details about a certificate.

### URI

GET /v2.0/lbaas/certificates/{certificate\_id}

**Table 5-202** Parameter description

| Parameter      | Mandatory | Type   | Description                   |
|----------------|-----------|--------|-------------------------------|
| certificate_id | Yes       | String | Specifies the certificate ID. |

### Request

None

## Response

**Table 5-203** Parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                           |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                         |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                                     |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .                                                                                                                                             |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                    |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                          |
| type           | String  | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul>                |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                  |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                    |
| certificate    | String  | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time    | String  | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                             |

| Parameter   | Type   | Description                                                                                                   |
|-------------|--------|---------------------------------------------------------------------------------------------------------------|
| create_time | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |

### Example Request

- Example request: Querying details of a certificate  
GET [https://\[Endpoint\]/v2.0/lbaas/certificates/23ef9aad4ecb463580476d324a6c71af](https://[Endpoint]/v2.0/lbaas/certificates/23ef9aad4ecb463580476d324a6c71af)

### Example Response

- Example response
 

```
{
 "certificate":
 "-----BEGIN CERTIFICATE-----
 \nMIIc4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
 \nb21wYW55IENBMB4XDTE4MDcwMjEzMDU0N1oXDTQ1MTEwNzEzMDU0N1owFDESMBAG
 \nA1UEAwJbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
 \n0FQGzi3ucTX+DNud1p/b4XVM6I3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
 \nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh9
 \n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
 \nIAzlsx+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
 \ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOTLMI28IEv0WY
 \nYd7CMJQkS1NPJBKNOGFR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
 \nhwQKuUvJhwr/AAABMBMGA1UdJQMMMAoGCCsGAQUFBwMBMA0GCsqGSIb3DQEBcWUA
 \nA4IBAQA8lMQxaTey7EjXtRSLVIEAMftAQP6gijNquvIBQYUDauDT4W2XUz5wAn
 \njiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
 \nezmzCwQYtHBMVQ4c7MI8554Ft1mWSt4dMAK2rzNYjvPRLYLzp1HMn16hkjPk4PCZ
 \nwkNha0dlScati9CCt3UzXSNJOSLalKdHErH08lqd+1BchScx Cfk0xNITn1HZZGml
 \n+vbmunok3A2luc14rnsrbcGyqXGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ
 \niYsGDVN+9QBd0eYUHce+77s96i3I
 \n-----END CERTIFICATE-----",
 "create_time": "2017-02-25 09:35:27",
 "expire_time": "2045-11-17 13:25:47",
 "description": "description for certificate",
 "domain": "www.elb.com",
 "id": "23ef9aad4ecb463580476d324a6c71af",
 "tenant_id": "a31d2bdcf7604c0faadb058e1e08819",
 "admin_state_up": true,
 "name": "https_certificate",
 "private_key":
 "-----BEGIN PRIVATE KEY-----
 \nMIIEvglBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5Xnf4M
 \n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcJ8KcX1nfzTvi2ksXITQ2o9BkpStnPc
 \ntB4s32ZijRmlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
 \nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AqzXt
 \nCOFYn6RTH5SRug4hKNN7sT1eYmSlHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
 \nZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwLCRLU08k
 \nEo04Z9H/AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/HL
 \nfvfCArftGgMaYWPSNCRJMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
 \nZVe4a5Hj1OcgYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
 \nciu9YklnNEHu6uRj5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
 \nEGpfYI6AdHlwFZcT/RNAXhP82lg2gUJSgAu66FFDjMwQXKbafkdP3zq4Up8a7Ale
 \nkrgruPtfv1vWklg+bUfhGaiAEYtpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
```



```

\nXUqgCZo8MKeV2jf2drLxRRwRl33SksQbzAQ/qrLdT7GP3sCGqvKxWY2FPdFYf8kx
\nGcCeZPcleZYCOAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjpp7dt
\nJ7n8EzkRUNE6aIMHOFEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\niWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELGI9CbKsdzKM71GyElmix/T7FnSHIwlho1qVo6AQyduNWnAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fflERmazdOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
\n/735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nfl7FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMJrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4Ctfk9o
\njHjWB7pQUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9lluk
\nfaoXgjkR7p1zERiWZuFF63SB4iyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----",
 "type": "server",
 "update_time": "2017-02-25 09:35:27"
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.9.4 Updating a Certificate

### Function

This API is used to update a certificate.

### Constraints

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

### URI

PUT /v2.0/lbaas/certificates/{certificate\_id}

**Table 5-204** Parameter description

| Parameter      | Mandatory | Type   | Description                   |
|----------------|-----------|--------|-------------------------------|
| certificate_id | Yes       | String | Specifies the certificate ID. |

## Request

**Table 5-205** Parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| name           | No        | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| description    | No        | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| domain         | No        | String  | Specifies the domain name associated with the server certificate. The default value is <b>null</b> .<br>The value contains a maximum of 100 characters.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• A common domain name contains 0 to 100 characters and consists of several strings separated by periods (.). Each string can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li> <li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*).</li> </ul> <b>NOTE</b><br>This parameter is valid only when <b>type</b> is set to <b>server</b> . |
| private_key    | No        | String  | Specifies the private key of the server certificate.<br>The private key is in PEM format.<br><b>NOTE</b><br>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                              |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| certificate | No        | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. The public key is in PEM format. |

## Response

**Table 5-206** Parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                            |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                          |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                      |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .                                                                                                                              |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                     |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                           |
| type           | String  | Specifies the certificate type.<br>The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul> |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                   |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                     |

| Parameter   | Type   | Description                                                                                                                                                                                                                                           |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| certificate | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time | String | Specifies the time when the certificate expires. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                |
| create_time | String | Specifies the time when the certificate was created. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                            |
| update_time | String | Specifies the time when the certificate was updated. The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                            |

## Example Request

- Example request: Updating a certificate

```
PUT https://{Endpoint}/v2.0/lbaas/certificates/23ef9aad4ecb463580476d324a6c71af
```

```
{
 "certificate":
 "-----BEGIN CERTIFICATE-----
 \nMIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
 \nb21wYW55IENBM4XDTE4MDcwMjEzU0N1oXDTQ1MTEwNzEzU0N1owFDESMBAG
 \nA1UEAwwJbG9jYXRob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKAEQ
 \n0FQGzi3ucTX+DNud1p/b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
 \nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8CtGv+eyU9yYJstWx/Bm5kWNPh9
 \n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
 \nIAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYky4zgnv1tn/K
 \ny09cxLKAFtgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOotLMI28IEv0WY
 \nyd7CMJQkS1NPJBKNOGFR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
 \nhwQKuUvJhwr/AAABMBMGA1UdJQMMAoGCCsGAQUFBwMBMA0GC5qGSIb3DQEBCwUA
 \nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQP6gijNQuvIBQYUDauDT4W2XUZ5wAn
 \njiOyQ83va672K1G9s8n6xLH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
 \nezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYLzp1HMn16hkjPk4PCZ
 \nwKnha0dlScati9Cct3UzXSNJOSLalKdHerH08lqd+1BchScx Cfk0xNITn1HZZGml
 \n+vbmunok3A2luc14rnsrbcGyqGikySN6B2cRLBDK4Y3wChiW6NVVtVqcx5/mZ
 \niYsGDVN+9QBd0eYUHce+77s96i3I
 \n-----END CERTIFICATE-----",
 "description": "description for certificate",
 "domain": "www.elb.com",
 "name": "https_certificate",
 "private_key":
 "-----BEGIN PRIVATE KEY-----
 \nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQQDQVAbOLe5xNf4M
 \n253Wn9vhdUzojetv4J+B7kYwsMhRcgdcJ8KcN1nfzTvi2ksXITQ2o9BkpStnPe
 \ntB4s32ZijRmlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
 \nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AqzXt
 \nCOFYn6RTH5SRug4hKNN7sT1eYmslHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
 \nZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwLCRLU08k
 \nEo04Z9H/AgMBAAECCggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/HL
```

```

\nfvCARftGgMaYWPNSNCJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSEtq8YaXngBO6vES9LMhHkNKKr
\nciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
\nEGpfYI6AdHlwFZcT/RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale
\nkrgruPtFv1vWklg+bUFhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCzO8MKeV2jf2drLxRRwRL33SksQbzAQ/qrLd7GP3sCGqvKxWY2FPdFyF8kx
\nGcCeZPcleZYQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjpp7dt
\nJ7n8EzkRUNE6alMHOFEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\niWgTWHXPZxUQaYhpjXo6+LMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jr4eB
\nl1VQhELG9CbKsDzKM71GyElmix/T7FnSHIWLho1qVo6AQyduNWnAQD15pr8KAD
\nXGXAZZ1FQcb3KYa+2fflERmazdOTwYz0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
\n/735uP20KKqhNehZpC2dJei7OiiRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nfl7FPMdvG8ioYbvlHFh+X0xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4qm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJKD4wHW54PwD4Ctfk9o
\nHjWB7pQUYpTZ09dm+4fpCMn9Okf43AE2yAOaAP94GdzdDjKxfciXKcsYr9lluk
\nfaoXgJKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----"
}

```

## Example Response

- Example response

```

{
 "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgICEREWdQYJKoZIhvcNAQELBQAwwFzEVMBMGA1UEAxMMTXID
\nb21wYW55IENBMB4XDTE4MDcwMjEzMDU0N1oXDTE4MDU0N1oXDTQ1MTE4MDU0N1owFDESMBAG
\nA1UEAwJbG9jYWxob3N0MIIlBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA\nn0FQZi3ucTX
+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\nU0NqPQZKUrZz3rQeLN9mYiUTJZPutY\FDDb
B8CtGv+eyU9yYJslWx/
Bm5kWNPh9\n7B9Yu9pbb2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQylyKy4zgnv1tn/K
\ny09cxLKAFtgoZWQD2FAZJf97k1kYNwqITz3CPLLZUUn7yW3nkOOTLMI28IEv0WYy
\nYd7CMJQkS1NPJBKNOfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
\nnhwQKuUvJhwR/AAABMBMGA1UdJQQMMAoGCCsGAQUFBwMBMA0GCSCqGSIb3DQEBCwUA
\nA4IBAQA8lMQJxaTey7EjXtRLSVIEAMftAQP6GjijNQuvIBQYUDauDT4W2XUz5wAn
\njiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKl6OoDa
\nnezmzCwQyTtHBMVQ4c7Ml8554Ft1mWst4dMAK2rzNjvPRLYLzp1HMnl6hkjPk4PCZ
\nnwKna0dlScati9Cct3UzXSNJOSLalKdHERH08lqd+1BchScxCfk0xNITn1HZZGml\n
+vbmunok3A2lucl14rnsrbcGyqGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----",
 "expire_time": "2045-11-17 13:25:47",
 "create_time": "2017-02-25 09:35:27",
 "description": "description for certificate",
 "domain": "www.elb.com",
 "id": "23ef9aad4ecb463580476d324a6c71af",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "name": "https_certificate",
 "private_key": "-----BEGIN PRIVATE KEY-----
\nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBAgEAAoIBAQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetv4J+B7kYwsMhRcgdcJ8KcN1nfzTvl2ksXITQ2o9BkpStnPe
\nntB4s32ZiJRMlk+61iUUMNhsWk2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nnMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AzaqXt
\nnCOFYn6RTH5SRug4hKNN7sT1eYMsLHu7wtEBDKVgrLjOCe/W2f8rL1zEsoAW2Chl
\nnZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
\nnEo04Z9H/AgMBAEECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\n\nfvCARftGgMaYWPNSNCJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\n\nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSEtq8YaXngBO6vES9LMhHkNKKr
\n\nciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
\n\nEGpfYI6AdHlwFZcT/RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale
\n\nkrgruPtFv1vWklg+bUFhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\n\nXUqgCzO8MKeV2jf2drLxRRwRL33SksQbzAQ/qrLd7GP3sCGqvKxWY2FPdFyF8kx
\n\nGcCeZPcleZYQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjpp7dt
\n\nJ7n8EzkRUNE6alMHOFEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\n\niWgTWHXPZxUQaYhpjXo6+LMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ

```

```

\nlS6VjoTkF6r7VZoiLXX0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELGI9CbKSdzKM71GyElmix/T7FnJSHIwlho1qVo6AQyduNWnAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fflERmazedOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
\n/735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nfl7FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54Pwd4Ctfk9o
\njHjWB7pQlUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDJkxfciXKcsYr9lluk
\nfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----",
 "type": "server",
 "update_time": "2017-02-25 09:38:27"
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 5.9.5 Deleting a Certificate

### Function

This API is used to delete a specific certificate.

### Constraints

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

### URI

DELETE /v2.0/lbaas/certificates/{certificate\_id}

**Table 5-207** Parameter description

| Parameter      | Mandatory | Type   | Description                   |
|----------------|-----------|--------|-------------------------------|
| certificate_id | Yes       | String | Specifies the certificate ID. |

### Request

- Request parameters  
None

### Response

- Response parameters  
None

## Example Request

- Example request: Deleting a certificate  
DELETE https://{Endpoint}/v2.0/lbaas/certificates/23ef9aad4ecb463580476d324a6c71af

## Example Response

- Example response 1  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6 Load Balancer (Enterprise Project) APIs

---

## 6.1 Load Balancer

### 6.1.1 Creating a Load Balancer

#### Function

This API is used to create a private network load balancer. After the load balancer is created, its details, such as load balancer ID, IP address, and subnet ID, are returned.

To create a public network load balancer, you also need to call the API for assigning a floating IP address and associate this IP address to the port bound to the IP address of the private network load balancer.

You can set the **enterprise\_project\_id** parameter to perform fine-grained authorization for resources.

#### URI

POST /v2/{project\_id}/elb/loadbalancers

**Table 6-1** Parameter description

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



## Request

**Table 6-2** Parameter description

| Parameter    | Mandatory | Type   | Description                                                               |
|--------------|-----------|--------|---------------------------------------------------------------------------|
| loadbalancer | Yes       | Object | Specifies the load balancer. For details, see <a href="#">Table 6-3</a> . |

**Table 6-3** loadbalancer parameter description

| Parameter     | Mandatory | Type   | Description                                                                                                                                                                                               |
|---------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name          | No        | String | Specifies the load balancer name.<br>The value contains a maximum of 255 characters.                                                                                                                      |
| description   | No        | String | Provides supplementary information about the load balancer.<br>The value contains a maximum of 255 characters.                                                                                            |
| tenant_id     | No        | String | Specifies the ID of the project where the load balancer is used.<br>The value contains a maximum of 255 characters.<br>The value must be the same as the value of <b>project_id</b> in the token.         |
| vip_subnet_id | Yes       | String | Specifies the ID of the subnet where the load balancer works. Obtain the value by listing the subnets. The private IP address of the load balancer is in this subnet.<br>Only IPv4 subnets are supported. |
| provider      | No        | String | Specifies the provider of the load balancer.<br>The value can only be <b>vlb</b> .                                                                                                                        |

| Parameter             | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                |
|-----------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| vip_address           | No        | String  | Specifies the private IP address of the load balancer.<br><br>This IP address must be the one in the subnet specified by <b>vip_subnet_id</b> . If this parameter is not specified, an IP address is automatically assigned to the load balancer from the subnet specified by <b>vip_subnet_id</b> .<br><br>The value contains a maximum of 64 characters. |
| admin_state_up        | No        | Boolean | Specifies the administrative status of the load balancer.<br><br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                            |
| enterprise_project_id | No        | String  | Specifies the enterprise project ID. When creating a load balancer, you can assign an enterprise project to the load balancer.<br><br>The value is character string <b>0</b> or a UUID with hyphens (-). Value <b>0</b> indicates the default enterprise project. The default value is <b>0</b> .                                                          |

## Response

**Table 6-4** Parameter description

| Parameter    | Type   | Description                                                               |
|--------------|--------|---------------------------------------------------------------------------|
| loadbalancer | Object | Specifies the load balancer. For details, see <a href="#">Table 6-5</a> . |

**Table 6-5** loadbalancer parameter description

| Parameter | Type   | Description                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the load balancer ID.                                                                                         |
| tenant_id | String | Specifies the ID of the project where the load balancer is used.<br><br>The value contains a maximum of 255 characters. |

| Parameter        | Type   | Description                                                                                                                                                                                                                                                                                |
|------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | String | Specifies the load balancer name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                       |
| description      | String | Provides supplementary information about the load balancer.<br>The value contains a maximum of 255 characters.                                                                                                                                                                             |
| vip_subnet_id    | String | Specifies the ID of the subnet where the load balancer works.                                                                                                                                                                                                                              |
| vip_port_id      | String | Specifies the ID of the port bound to the private IP address of the load balancer.                                                                                                                                                                                                         |
| provider         | String | Specifies the provider of the load balancer.                                                                                                                                                                                                                                               |
| vip_address      | String | Specifies the private IP address of the load balancer.<br>The value contains a maximum of 64 characters.                                                                                                                                                                                   |
| listeners        | Array  | Lists the IDs of listeners added to the load balancer. For details, see <a href="#">Table 6-6</a> .                                                                                                                                                                                        |
| pools            | Array  | Lists the IDs of backend server groups associated with the load balancer. For details, see <a href="#">Table 6-7</a> .                                                                                                                                                                     |
| operating_status | String | Specifies the operating status of the load balancer.<br>The value can be <b>ONLINE</b> , <b>OFFLINE</b> , <b>DEGRADED</b> , <b>DISABLED</b> , or <b>NO_MONITOR</b> .<br>This parameter is reserved. The default value is <b>ONLINE</b> .<br>The value contains a maximum of 16 characters. |

| Parameter             | Type    | Description                                                                                                                                                                                                                                                      |
|-----------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status   | String  | Specifies the provisioning status of the load balancer.<br>The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>This parameter is reserved. The default value is <b>ACTIVE</b> .<br>The value contains a maximum of 16 characters.      |
| admin_state_up        | Boolean | Specifies the administrative status of the load balancer.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                      |
| tags                  | Array   | Lists load balancer tags.                                                                                                                                                                                                                                        |
| created_at            | String  | Specifies the time when the load balancer was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                                |
| updated_at            | String  | Specifies the time when the load balancer was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                                |
| enterprise_project_id | String  | Specifies the enterprise project ID. When creating a load balancer, you can assign an enterprise project to the load balancer.<br>The value is character string <b>0</b> or a UUID with hyphens (-).<br>Value <b>0</b> indicates the default enterprise project. |

**Table 6-6** listeners parameter description

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

**Table 6-7** pools parameter description

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

## Example Request

- Example request 1: Creating a private network load balancer

POST <https://{{Endpoint}}/v2/1867112d054b427e808cc6096d8193a1/elb/loadbalancers>

```
{
 "loadbalancer": {
 "name": "loadbalancer1",
 "description": "simple lb",
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
 "vip_address": "10.0.0.4",
 "admin_state_up": true,
 "enterprise_project_id": "0aad99bc-f5f6-4f78-8404-c598d76b0ed2"
 }
}
```

- Example request 2: Creating a public network load balancer

(Bind an EIP to the port that has been bound to the load balancer's private IP address. For details about the parameters, see [Table 6-8](#).)

**Table 6-8** Request parameters

| Parameter                 | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| publicip                  | Yes       | Object | Specifies the EIP. For details, see <a href="#">Table 6-9</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| bandwidth                 | Yes       | Object | Specifies the bandwidth. For details, see <a href="#">Table 6-10</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| enterprise_p<br>roject_id | No        | String | <ul style="list-style-type: none"> <li>• Specifies the enterprise project ID. The value is <b>0</b> or a string that contains a maximum of 36 characters in UUID format with hyphens (-).</li> <li>• When assigning an EIP, you need to bind an enterprise project ID to the EIP.</li> <li>• If this parameter is not specified, the default value is <b>0</b>.</li> </ul> <p><b>NOTE</b><br/>For more information about enterprise projects and how to obtain enterprise project IDs, see <i>Enterprise Management User Guide</i>.</p> |

**Table 6-9 publicip** parameter description

| Parameter  | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type       | Yes       | String  | <ul style="list-style-type: none"> <li>• Specifies the EIP type.</li> <li>• Note: <ul style="list-style-type: none"> <li>– The configured value must be supported by the system.</li> <li>– <b>publicip_id</b> is an IPv4 port. If <b>publicip_type</b> is not specified, the default value is <b>5_bgp</b>.</li> </ul> </li> </ul>                                                                                                                 |
| ip_version | No        | Integer | <ul style="list-style-type: none"> <li>• Specifies the EIP version.</li> <li>• The value can be <b>4</b> and <b>6</b>. <b>4</b> indicates an IPv4 address, and <b>6</b> indicates an IPv6 address.</li> <li>• Note: <ul style="list-style-type: none"> <li>– The configured value must be supported by the system.</li> <li>– If this parameter is left blank or is an empty string, an IPv4 address is assigned by default.</li> </ul> </li> </ul> |
| ip_address | No        | String  | <ul style="list-style-type: none"> <li>• Specifies the EIP to be assigned. The system automatically assigns an EIP if you do not specify it.</li> <li>• The value must be a valid IPv4 address in the available IP address range.</li> </ul>                                                                                                                                                                                                        |

**Table 6-10 bandwidth** parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name      | Yes       | String | <ul style="list-style-type: none"> <li>• Specifies the bandwidth name.</li> <li>• The value is a string of 1 to 64 characters that can contain letters, digits, underscores (_), hyphens (-), and periods (.).</li> <li>• This parameter is mandatory when <b>share_type</b> is set to <b>PER</b>. This parameter will be ignored when <b>share_type</b> is set to <b>WHOLE</b> with an ID specified.</li> </ul> |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| size      | Yes       | Integer | <ul style="list-style-type: none"> <li>Specifies the bandwidth (Mbit/s).</li> <li>The value ranges from <b>1</b> to <b>300</b> by default. (The range may vary depending on the configuration in each region. You can see the bandwidth range of each region on the management console.)</li> <li>This parameter is mandatory when <b>share_type</b> is set to <b>PER</b>. This parameter will be ignored when <b>share_type</b> is set to <b>WHOLE</b> with an ID specified.</li> <li>The minimum unit for bandwidth adjustment varies depending on the bandwidth range. The details are as follows: <ul style="list-style-type: none"> <li>The minimum increment is 1 Mbit/s if the allowed bandwidth ranges from 0 to 300 Mbit/s (with 300 Mbit/s included).</li> <li>The minimum increment is 50 Mbit/s if the allowed bandwidth ranges from 300 Mbit/s to 1000 Mbit/s.</li> <li>The minimum increment is 500 Mbit/s if the allowed bandwidth is greater than 1000 Mbit/s.</li> </ul> </li> </ul> |
| id        | No        | String  | <ul style="list-style-type: none"> <li>Specifies the bandwidth ID. You can specify an existing shared bandwidth when assigning an EIP.</li> <li>The value can be the ID of the shared bandwidth whose type is set to <b>WHOLE</b>.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



| Parameter   | Mandatory | Type   | Description                                                                                                                                                   |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| share_type  | Yes       | String | <ul style="list-style-type: none"> <li>Specifies the bandwidth type.</li> <li>The value is <b>PER</b>, indicating that the bandwidth is dedicated.</li> </ul> |
| charge_mode | No        | String | <ul style="list-style-type: none"> <li>If the value is <b>traffic</b>, the bandwidth is billed by traffic.</li> </ul>                                         |

– Step 1: Apply for an EIP.

POST https://{VPCEndpoint}/v1/8b7e35ad379141fc9df3e178bd64f55c/publicips

```
{
 "publicip": {
 "type": "5_bgp",
 "ip_version": 4
 },
 "bandwidth": {
 "name": "bandwidth123",
 "size": 10,
 "share_type": "PER"
 }
}
```

– Example response

```
{
 "publicip": {
 "id": "f588ccfa-8750-4d7c-bf5d-2ede24414706",
 "status": "PENDING_CREATE",
 "type": "5_bgp",
 "public_ip_address": "139.9.204.183",
 "tenant_id": "8b7e35ad379141fc9df3e178bd64f55c",
 "ip_version": 4,
 "create_time": "2019-06-29 06:45:32",
 "bandwidth_size": 1
 }
}
```

– Step 2: Bind the EIP. (The value of **public\_id** is the same as that in the **Example response**, and the value of **port\_id** is the same as that of **vip\_port\_id** in **Example response 1**.)

PUT /v1/8b7e35ad379141fc9df3e178bd64f55c/publicips/f588ccfa-8750-4d7c-bf5d-2ede24414706

```
{
 "publicip": {
 "port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7"
 }
}
```

– Example response

```
{
 "publicip": {
 "id": "f588ccfa-8750-4d7c-bf5d-2ede24414706",
 "status": "ACTIVE",
 "type": "5_bgp",
 "port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7",
 "public_ip_address": "139.9.204.183",
 "private_ip_address": "192.168.1.131",
 "tenant_id": "8b7e35ad379141fc9df3e178bd64f55c",
 }
}
```

```
"create_time": "2019-06-29 07:33:18",
"bandwidth_size": 1,
"ip_version": 4
}
}
```

- After the preceding steps are complete, the load balancer has the capability of accessing the public network. You can access the load balancer using 139.9.204.183, the value of parameter **public\_ip\_address**.

## Example Response

- Example response 1

```
{
 "loadbalancer": {
 "description": "",
 "admin_state_up": true,
 "tenant_id": "1867112d054b427e808cc6096d8193a1",

 "provisioning_status": "ACTIVE",
 "vip_subnet_id": "58077bdb-d470-424b-8c45-2e3c65060a5b",
 "listeners": [],
 "vip_address": "10.0.0.4",
 "vip_port_id": "519f6af5-74aa-4347-9dba-84c440192877",
 "provider": "vlb",
 "pools": [],
 "tags": [],
 "id": "b0657373-0c68-41d1-980f-1a44d9e3ff01",
 "operating_status": "ONLINE",
 "name": "loadbalancer1",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14",
 "enterprise_project_id": "0aad99bc-f5f6-4f78-8404-c598d76b0ed2"
 }
}
```

- Example response 2

```
{
 "publicip": {
 "id": "f588ccfa-8750-4d7c-bf5d-2ede24414706",
 "status": "ACTIVE",
 "type": "5_bgp",
 "port_id": "a7ecbdb5-5a63-41dd-a830-e16c0a7e04a7",
 "public_ip_address": "139.9.204.183",
 "private_ip_address": "192.168.1.131",
 "tenant_id": "8b7e35ad379141fc9df3e178bd64f55c",
 "create_time": "2019-06-29 07:33:18",
 "bandwidth_size": 1,
 "ip_version": 4
 }
}
```

After the preceding steps are complete, the load balancer has the capability of accessing the public network. You can access the load balancer using 139.9.204.183, the value of parameter **public\_ip\_address**.

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.1.2 Querying Load Balancers

### Function

This API is used to query load balancers and display them in a list. Filter query and pagination query are supported.

Unless otherwise specified, exact match is applied.

### URI

GET /v2/{project\_id}/elb/loadbalancers

**Table 6-11** Parameter description

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

### Request

**Table 6-12** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the listener from which pagination query starts, that is, the ID of the last listener on the previous page.<br><br>This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                                   |
| limit        | No        | Integer | Specifies the number of listeners on each page. If this parameter is not set, all load balancers are queried by default.                                                                                                                                                                                                                                                                                                          |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the load balancer ID.                                                                                                                                                                                                                                                                                                                                                                                                   |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                          |
|---------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description         | No        | String  | Provides supplementary information about the load balancer.<br>The value contains a maximum of 255 characters.                                                                                                                                                       |
| name                | No        | String  | Specifies the load balancer name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                 |
| operating_status    | No        | String  | Specifies the operating status of the load balancer.<br>The value can be <b>ONLINE</b> , <b>OFFLINE</b> , <b>DEGRADED</b> , <b>DISABLED</b> , or <b>NO_MONITOR</b> .<br>The value contains a maximum of 16 characters.<br><b>NOTE</b><br>This parameter is reserved. |
| provisioning_status | No        | String  | Specifies the provisioning status of the load balancer.<br>The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The value contains a maximum of 16 characters.<br><b>NOTE</b><br>This parameter is reserved.                                |
| admin_state_up      | No        | Boolean | Specifies the administrative status of the load balancer. The load balancer stops receiving traffic after it is disabled.<br>Value options:<br><b>true</b> : Enable a load balancer.<br><b>false</b> : Disable the load balancer.                                    |
| vip_address         | No        | String  | Specifies the private IP address of the load balancer.<br>The value contains a maximum of 64 characters.                                                                                                                                                             |
| vip_port_id         | No        | String  | Specifies the ID of the port bound to the private IP address of the load balancer.                                                                                                                                                                                   |
| vip_subnet_id       | No        | String  | Specifies the ID of the subnet where the load balancer works.                                                                                                                                                                                                        |
| member_address      | No        | String  | Specifies the IP address of the backend server associated with the load balancer.                                                                                                                                                                                    |

| Parameter             | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| member_device_id      | No        | String | Specifies the ID of the ECS corresponding to the backend server associated with the load balancer.                                                                                                                                                                                                                                                                                                                                 |
| vpc_id                | No        | String | Specifies the ID of the VPC where the load balancer works.                                                                                                                                                                                                                                                                                                                                                                         |
| enterprise_project_id | No        | String | Specifies the enterprise project ID. When creating a load balancer, you can assign an enterprise project to the load balancer. The value is character string <b>0</b> or <b>all_granted_eps</b> , or a UUID with hyphens (-). Value <b>0</b> indicates the default enterprise project. Value <b>all_granted_eps</b> indicates that resources in all authorized enterprise projects are queried.<br>The default value is <b>0</b> . |

## Response

**Table 6-13** Response parameters

| Parameter     | Type  | Description                                                             |
|---------------|-------|-------------------------------------------------------------------------|
| loadbalancers | Array | Lists the load balancers. For details, see <a href="#">Table 6-14</a> . |

**Table 6-14** loadbalancer parameter description

| Parameter | Type   | Description                                                                                                         |
|-----------|--------|---------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the load balancer ID.                                                                                     |
| tenant_id | String | Specifies the ID of the project where the load balancer is used.<br>The value contains a maximum of 255 characters. |
| name      | String | Specifies the load balancer name.<br>The value contains a maximum of 255 characters.                                |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                |
|---------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description         | String | Provides supplementary information about the load balancer.<br>The value contains a maximum of 255 characters.                                                                                                                                                                             |
| vip_subnet_id       | String | Specifies the ID of the subnet where the load balancer works.                                                                                                                                                                                                                              |
| vip_port_id         | String | Specifies the ID of the port bound to the private IP address of the load balancer.                                                                                                                                                                                                         |
| provider            | String | Specifies the provider of the load balancer.                                                                                                                                                                                                                                               |
| vip_address         | String | Specifies the private IP address of the load balancer.<br>The value contains a maximum of 64 characters.                                                                                                                                                                                   |
| listeners           | Array  | Lists the IDs of listeners added to the load balancer. For details, see <a href="#">Table 6-6</a> .                                                                                                                                                                                        |
| pools               | Array  | Lists the IDs of backend server groups associated with the load balancer. For details, see <a href="#">Table 6-7</a> .                                                                                                                                                                     |
| operating_status    | String | Specifies the operating status of the load balancer.<br>The value can be <b>ONLINE</b> , <b>OFFLINE</b> , <b>DEGRADED</b> , <b>DISABLED</b> , or <b>NO_MONITOR</b> .<br>This parameter is reserved. The default value is <b>ONLINE</b> .<br>The value contains a maximum of 16 characters. |
| provisioning_status | String | Specifies the provisioning status of the load balancer.<br>The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>This parameter is reserved. The default value is <b>ACTIVE</b> .<br>The value contains a maximum of 16 characters.                                |

| Parameter             | Type    | Description                                                                                                                                                                                                                                                   |
|-----------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up        | Boolean | Specifies the administrative status of the load balancer.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                   |
| tags                  | Array   | Lists load balancer tags.                                                                                                                                                                                                                                     |
| created_at            | String  | Specifies the time when the load balancer was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                             |
| updated_at            | String  | Specifies the time when the load balancer was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                             |
| enterprise_project_id | String  | Specifies the enterprise project ID. When creating a load balancer, you can assign an enterprise project to the load balancer.<br>The value is character string <b>0</b> or a UUID with hyphens (-). Value <b>0</b> indicates the default enterprise project. |

**Table 6-15 listeners** parameter description

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

**Table 6-16 pools** parameter description

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

## Example Request

- Example request 1  
GET https://{Endpoint}/v2/1a3e005cf9ce40308c900bcb08e5320c/elb/loadbalancers
- Example request 2  
GET https://{Endpoint}/v2/1a3e005cf9ce40308c900bcb08e5320c/elb/loadbalancers?limit=10&marker=165b6a38-5278-4569-b747-b2ee65ea84a4
- Example request 3  
GET https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/loadbalancers?member\_address=192.168.0.198

## Example Response

- Example response 1
 

```
{
 "loadbalancers": [
 {
 "description": "simple lb",
 "admin_state_up": true,
 "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",

 "provisioning_status": "ACTIVE",
 "vip_subnet_id": "5328f1e6-ce29-44f1-9493-b128a5653350",
 "listeners": [
 {
 "id": "45196943-2907-4369-87b1-c009b1d7ac35"
 }
],
 "vip_address": "10.0.0.2",
 "vip_port_id": "cbced4fe-6f6f-4fd6-9348-0c3d1219d6ca",
 "provider": "vlb",
 "pools": [
 {
 "id": "21d49cf7-4fd3-4cb6-8c48-b7fc6c259aab"
 }
],
 "id": "a9729389-6147-41a3-ab22-a24aed8692b2",
 "operating_status": "ONLINE",
 "tags": [],
 "name": "loadbalancer1",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14",
 "enterprise_project_id": "0aad99bc-f5f6-4f78-8404-c598d76b0ed2"
 }
]
}
```
- Example response 2
 

```
{
 "loadbalancers": [
 {
 "description": "",
 "provisioning_status": "ACTIVE",
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "admin_state_up": true,
 "provider": "vlb",
 "pools": [
 {
 "id": "b13dba4c-a44c-4c40-8f6e-ce7a162b9f22"
 },
 {
 "id": "4b9e765f-82ee-4128-911b-0a2d9ebc74c7"
 }
],
 "listeners": [
 {
 "id": "21c41336-d0d3-4349-8641-6e82b4a4d097"
 }
]
 }
]
}
```



```
 },
],
 "vip_port_id": "44ac5d9b-b0c0-4810-9a9d-c4dbf541e47e",
 "operating_status": "ONLINE",
 "vip_address": "192.168.0.234",
 "vip_subnet_id": "9d60827e-0e5c-490a-8183-0b6ebf9084ca",
 "id": "e79a7dd6-3a38-429a-95f9-c7f78b346cbe",
 "tags": [],
 "name": "elb-robot",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14",
 "enterprise_project_id": "0aad99bc-f5f6-4f78-8404-c598d76b0ed2"
 }
]
}
```

- Example response 3

```
{
 "loadbalancers": [
 {
 "description": "",
 "provisioning_status": "ACTIVE",
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "admin_state_up": true,
 "provider": "vlb",
 "pools": [
 {
 "id": "ed75f16e-fcc6-403e-a3fb-4eae82005eab"
 },
 {
 "id": "f15f2723-4135-4bf8-9259-047d92684197"
 }
],
 "listeners": [
 {
 "id": "75045172-70e9-480d-9443-b8b6459948f7"
 },
 {
 "id": "b9a99cbb-d0a1-4269-bc5f-752ec37a10c3"
 }
],
 "vip_port_id": "fb3f10f0-9417-4cf2-a82e-8f1da1687484",
 "operating_status": "ONLINE",
 "vip_address": "192.168.0.16",
 "vip_subnet_id": "3a450aa4-f642-4da8-b70d-cafd4a633b51",
 "id": "bc7ba445-035a-4464-a1a3-a62cf4a14116",
 "tags": [],
 "name": "elb-hm-test",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14",
 "enterprise_project_id": "0aad99bc-f5f6-4f78-8404-c598d76b0ed2"
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.1.3 Querying Details of a Load Balancer

### Function

This API is used to query details about a load balancer using its ID.

## URI

GET /v2/{project\_id}/elb/loadbalancers/{loadbalancer\_id}

**Table 6-17** Parameter description

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

## Request

None

## Response

**Table 6-18** Response parameters

| Parameter    | Type   | Description                                                                |
|--------------|--------|----------------------------------------------------------------------------|
| loadbalancer | Object | Specifies the load balancer. For details, see <a href="#">Table 6-19</a> . |

**Table 6-19** loadbalancer parameter description

| Parameter     | Type   | Description                                                                                                         |
|---------------|--------|---------------------------------------------------------------------------------------------------------------------|
| id            | String | Specifies the load balancer ID.                                                                                     |
| tenant_id     | String | Specifies the ID of the project where the load balancer is used.<br>The value contains a maximum of 255 characters. |
| name          | String | Specifies the load balancer name.<br>The value contains a maximum of 255 characters.                                |
| description   | String | Provides supplementary information about the load balancer.<br>The value contains a maximum of 255 characters.      |
| vip_subnet_id | String | Specifies the ID of the subnet where the load balancer works.                                                       |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                |
|---------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| vip_port_id         | String  | Specifies the ID of the port bound to the private IP address of the load balancer.                                                                                                                                                                                                         |
| provider            | String  | Specifies the provider of the load balancer.                                                                                                                                                                                                                                               |
| vip_address         | String  | Specifies the private IP address of the load balancer.<br>The value contains a maximum of 64 characters.                                                                                                                                                                                   |
| listeners           | Array   | Lists the IDs of listeners added to the load balancer. For details, see <a href="#">Table 6-6</a> .                                                                                                                                                                                        |
| pools               | Array   | Lists the IDs of backend server groups associated with the load balancer. For details, see <a href="#">Table 6-7</a> .                                                                                                                                                                     |
| operating_status    | String  | Specifies the operating status of the load balancer.<br>The value can be <b>ONLINE</b> , <b>OFFLINE</b> , <b>DEGRADED</b> , <b>DISABLED</b> , or <b>NO_MONITOR</b> .<br>This parameter is reserved. The default value is <b>ONLINE</b> .<br>The value contains a maximum of 16 characters. |
| provisioning_status | String  | Specifies the provisioning status of the load balancer.<br>The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>This parameter is reserved. The default value is <b>ACTIVE</b> .<br>The value contains a maximum of 16 characters.                                |
| admin_state_up      | Boolean | Specifies the administrative status of the load balancer.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                |
| tags                | Array   | Lists load balancer tags.                                                                                                                                                                                                                                                                  |

| Parameter             | Type   | Description                                                                                                                                                                                                                                                       |
|-----------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| created_at            | String | Specifies the time when the load balancer was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                                 |
| updated_at            | String | Specifies the time when the load balancer was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                                 |
| enterprise_project_id | String | Specifies the enterprise project ID. When creating a load balancer, you can assign an enterprise project to the load balancer.<br><br>The value is character string <b>0</b> or a UUID with hyphens (-). Value <b>0</b> indicates the default enterprise project. |

**Table 6-20 listeners** parameter description

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

**Table 6-21 pools** parameter description

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

## Example Request

- Example request  
GET <https://{Endpoint}/v2/1867112d054b427e808cc6096d8193a1/elb/loadbalancers/3d77894d-2ffe-4411-ac0a-0d57689779b8>

## Example Response

- Example response

```

{
 "loadbalancer": {
 "description": "",
 "admin_state_up": true,
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "provisioning_status": "ACTIVE",
 "vip_subnet_id": "4f5e8efe-fbbe-405e-b48c-a41202ef697c",
 "listeners": [
 {
 "id": "09e64049-2ab0-4763-a8c5-f4207875dc3e"
 }
],
 "vip_address": "192.168.2.4",
 "vip_port_id": "c7157e7a-036a-42ca-8474-100be22e3727",
 "provider": "vlb",
 "pools": [
 {
 "id": "b7e53dbd-62ab-4505-a280-5c066078a5c9"
 }
],
 "id": "3d77894d-2ffe-4411-ac0a-0d57689779b8",
 "operating_status": "ONLINE",
 "tags": [],
 "name": "lb-2",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14",
 "enterprise_project_id": "0aad99bc-f5f6-4f78-8404-c598d76b0ed2"
 }
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.1.4 Querying the Status Tree of a Load Balancer

### Function

This API is used to query the status tree of a load balancer. You can use this API to query details about the associated listeners, backend server groups, backend servers, health checks, forwarding policies, and forwarding rules, helping you understand the topology of resources associated with the load balancer.

### URI

GET /v2/{project\_id}/elb/loadbalancers/{loadbalancer\_id}/statuses

**Table 6-22** Parameter description

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

### Request

None

## Response

**Table 6-23** Parameter description

| Parameter | Type   | Description                                                                                 |
|-----------|--------|---------------------------------------------------------------------------------------------|
| statuses  | Object | Specifies the status tree of a load balancer. For details, see <a href="#">Table 6-24</a> . |

**Table 6-24** statuses parameter description

| Parameter    | Type   | Description                                                                |
|--------------|--------|----------------------------------------------------------------------------|
| loadbalancer | Object | Specifies the load balancer. For details, see <a href="#">Table 6-25</a> . |

**Table 6-25** loadbalancer parameter description

| Parameter        | Type   | Description                                                                                                                                                                                                                                                                                                                                              |
|------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String | Specifies the load balancer ID.                                                                                                                                                                                                                                                                                                                          |
| name             | String | Specifies the load balancer name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                     |
| listeners        | Array  | Lists the listeners added to the load balancer. For details of this parameter, see <a href="#">Table 6-26</a> .                                                                                                                                                                                                                                          |
| pools            | Array  | Lists the backend server groups associated with the load balancer. For details of this parameter, see <a href="#">Table 6-27</a> .                                                                                                                                                                                                                       |
| operating_status | String | <ul style="list-style-type: none"> <li>Specifies the operating status of the load balancer.</li> <li>The value can be <b>ONLINE</b>, <b>OFFLINE</b>, <b>DEGRADED</b>, <b>DISABLED</b>, or <b>NO_MONITOR</b>.</li> <li>This parameter is reserved. The default value is <b>ONLINE</b>.</li> <li>The value contains a maximum of 16 characters.</li> </ul> |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                 |
|---------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | String | <ul style="list-style-type: none"> <li>Specifies the provisioning status of the load balancer.</li> <li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li> <li>This parameter is reserved. The default value is <b>ACTIVE</b>.</li> <li>The value contains a maximum of 16 characters.</li> </ul> |

**Table 6-26** listeners parameter description

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                 |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id                  | String | Specifies the listener ID.                                                                                                                                                                                                                                                                  |
| name                | String | Specifies the listener name.                                                                                                                                                                                                                                                                |
| l7policies          | Array  | Lists associated forwarding policies. For details of this parameter, see <a href="#">Table 6-30</a> .                                                                                                                                                                                       |
| pools               | Array  | Lists the backend server groups associated with the listener. For details of this parameter, see <a href="#">Table 6-27</a> .                                                                                                                                                               |
| operating_status    | String | <ul style="list-style-type: none"> <li>Specifies the operating status of the listener.</li> <li>The value can be <b>ONLINE</b>, <b>OFFLINE</b>, <b>DEGRADED</b>, <b>DISABLED</b>, or <b>NO_MONITOR</b>.</li> <li>This parameter is reserved. The default value is <b>ONLINE</b>.</li> </ul> |
| provisioning_status | String | <ul style="list-style-type: none"> <li>Specifies the provisioning status of the listener.</li> <li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li> <li>This parameter is reserved. The default value is <b>ACTIVE</b>.</li> </ul>                              |

**Table 6-27 pools** parameter description

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                             |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id                  | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                           |
| name                | String | Specifies the name of the backend server group.                                                                                                                                                                                                                                                         |
| healthmonitor       | Object | Provides health check details of the backend server group. For details of this parameter, see <a href="#">Table 6-28</a> .                                                                                                                                                                              |
| members             | Array  | Lists the members contained in the backend server group. For details of this parameter, see <a href="#">Table 6-29</a> .                                                                                                                                                                                |
| operating_status    | String | <ul style="list-style-type: none"> <li>Specifies the operating status of the backend server group.</li> <li>The value can be <b>ONLINE</b>, <b>OFFLINE</b>, <b>DEGRADED</b>, <b>DISABLED</b>, or <b>NO_MONITOR</b>.</li> <li>This parameter is reserved. The default value is <b>ONLINE</b>.</li> </ul> |
| provisioning_status | String | <ul style="list-style-type: none"> <li>Specifies the provisioning status of the backend server group.</li> <li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li> <li>This parameter is reserved. The default value is <b>ACTIVE</b>.</li> </ul>                              |

**Table 6-28 healthmonitor** parameter description

| Parameter | Type   | Description                                                                                                                                                      |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the health check ID.                                                                                                                                   |
| name      | String | Specifies the health check name.                                                                                                                                 |
| type      | String | <ul style="list-style-type: none"> <li>Specifies the health check protocol.</li> <li>The value can be <b>UDP_CONNECT</b>, <b>TCP</b>, or <b>HTTP</b>.</li> </ul> |



| Parameter           | Type   | Description                                                                                                                                                                                                                                                        |
|---------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | String | <ul style="list-style-type: none"> <li>Specifies the provisioning status of the health check.</li> <li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li> <li>This parameter is reserved. The default value is <b>ACTIVE</b>.</li> </ul> |

**Table 6-29** members parameter description

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id                  | String  | Specifies the backend server ID.                                                                                                                                                                                                                                                                                                                                                                                                       |
| address             | String  | Specifies the private IP address of the backend server, for example, 192.168.3.11.                                                                                                                                                                                                                                                                                                                                                     |
| protocol_port       | Integer | <ul style="list-style-type: none"> <li>Specifies the port used by the backend server.</li> <li>The port number ranges from 0 to 65535.</li> </ul>                                                                                                                                                                                                                                                                                      |
| operating_status    | String  | <ul style="list-style-type: none"> <li>Specifies the health check result of the backend server.</li> <li>The value can be <b>ONLINE</b>, <b>OFFLINE</b>, <b>DEGRADED</b>, <b>DISABLED</b>, or <b>NO_MONITOR</b>. <b>ONLINE</b>: The backend server is healthy. <b>OFFLINE</b>: The backend server is <b>unhealthy</b>. <b>DISABLED</b>: The backend server does not exist. <b>NO_MONITOR</b>: The health check is disabled.</li> </ul> |
| provisioning_status | String  | <ul style="list-style-type: none"> <li>Specifies the provisioning status of the backend server.</li> <li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li> <li>This parameter is reserved. The default value is <b>ACTIVE</b>.</li> </ul>                                                                                                                                                                   |

**Table 6-30 l7policies** parameter description

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id                  | String | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                                   |
| name                | String | Specifies the forwarding policy name.                                                                                                                                                                                                                                                                                                                                                                                                 |
| rules               | Array  | Lists the forwarding rules of the forwarding policy. For details of this parameter, see <a href="#">Table 6-31</a> .                                                                                                                                                                                                                                                                                                                  |
| action              | String | <ul style="list-style-type: none"> <li>Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.</li> <li>The value can be <b>REDIRECT_TO_POOL</b> or <b>REDIRECT_TO_LISTENER</b>.<br/> <b>REDIRECT_TO_POOL:</b><br/> Requests are forwarded to another backend server group.<br/> <b>REDIRECT_TO_LISTENER:</b><br/> Requests are redirected to an HTTPS listener.</li> </ul> |
| provisioning_status | String | <ul style="list-style-type: none"> <li>Specifies the provisioning status of the forwarding policy.</li> <li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li> <li>This parameter is reserved. The default value is <b>ACTIVE</b>.</li> </ul>                                                                                                                                                               |

**Table 6-31 rules** parameter description

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

| Parameter           | Type   | Description                                                                                                                                                                                                                                                           |
|---------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type                | String | <ul style="list-style-type: none"> <li>Specifies the match type of a forwarding rule.</li> <li>The value can be <b>PATH</b> or <b>HOST_NAME</b>. <b>PATH</b>: matches the path in the request. <b>HOST_NAME</b>: matches the domain name in the request.</li> </ul>   |
| provisioning_status | String | <ul style="list-style-type: none"> <li>Specifies the provisioning status of the forwarding rule.</li> <li>The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</li> <li>This parameter is reserved. The default value is <b>ACTIVE</b>.</li> </ul> |

### Example Request

- Example request  
GET https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/loadbalancers/38278031-cfca-44be-81be-a412f618773b/statuses

### Example Response

- Example response
 

```

{
 "statuses": {
 "loadbalancer": {
 "name": "lb-jy",
 "provisioning_status": "ACTIVE",
 "listeners": [
 {
 "name": "listener-jy-1",
 "provisioning_status": "ACTIVE",
 "pools": [
 {
 "name": "pool-jy-1",
 "provisioning_status": "ACTIVE",
 "healthmonitor": {
 "type": "TCP",
 "id": "7422b51a-0ed2-4702-9429-4f88349276c6",
 "name": "",
 "provisioning_status": "ACTIVE"
 },
 "members": [
 {
 "protocol_port": 80,
 "address": "192.168.44.11",
 "id": "7bbf7151-0dce-4087-b316-06c7fa17b894",
 "operating_status": "ONLINE",
 "provisioning_status": "ACTIVE"
 }
]
 }
]
 }
],
 "id": "c54b3286-2349-4c5c-ade1-e6bb0b26ad18",
 "operating_status": "ONLINE"
 }
 }
}

```

```

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

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.1.5 Updating a Load Balancer

### Function

This API is used to update the name or description of a load balancer.

### URI

PUT /v2/{project\_id}/elb/loadbalancers/{loadbalancer\_id}

**Table 6-32** Parameter description

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

## Request

**Table 6-33** Parameter description

| Parameter    | Mandatory | Type   | Description                                                                |
|--------------|-----------|--------|----------------------------------------------------------------------------|
| loadbalancer | Yes       | Object | Specifies the load balancer. For details, see <a href="#">Table 6-34</a> . |

**Table 6-34** loadbalancer parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                 |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------|
| name           | No        | String  | Specifies the load balancer name.<br>The value contains a maximum of 255 characters.                                        |
| description    | No        | String  | Provides supplementary information about the load balancer.<br>The value contains a maximum of 255 characters.              |
| admin_state_up | No        | Boolean | Specifies the administrative status of the load balancer.<br>This parameter is reserved. The default value is <b>true</b> . |

## Response

**Table 6-35** Response parameters

| Parameter    | Type   | Description                                                                |
|--------------|--------|----------------------------------------------------------------------------|
| loadbalancer | Object | Specifies the load balancer. For details, see <a href="#">Table 6-36</a> . |

**Table 6-36 loadbalancer** parameter description

| Parameter     | Type   | Description                                                                                                            |
|---------------|--------|------------------------------------------------------------------------------------------------------------------------|
| id            | String | Specifies the load balancer ID.                                                                                        |
| tenant_id     | String | Specifies the ID of the project where the load balancer is used. The value contains a maximum of 255 characters.       |
| name          | String | Specifies the load balancer name. The value contains a maximum of 255 characters.                                      |
| description   | String | Provides supplementary information about the load balancer. The value contains a maximum of 255 characters.            |
| vip_subnet_id | String | Specifies the ID of the subnet where the load balancer works.                                                          |
| vip_port_id   | String | Specifies the ID of the port bound to the private IP address of the load balancer.                                     |
| provider      | String | Specifies the provider of the load balancer.                                                                           |
| vip_address   | String | Specifies the private IP address of the load balancer. The value contains a maximum of 64 characters.                  |
| listeners     | Array  | Lists the IDs of listeners added to the load balancer. For details, see <a href="#">Table 6-6</a> .                    |
| pools         | Array  | Lists the IDs of backend server groups associated with the load balancer. For details, see <a href="#">Table 6-7</a> . |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                |
|---------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| operating_status    | String  | Specifies the operating status of the load balancer.<br>The value can be <b>ONLINE</b> , <b>OFFLINE</b> , <b>DEGRADED</b> , <b>DISABLED</b> , or <b>NO_MONITOR</b> .<br>This parameter is reserved. The default value is <b>ONLINE</b> .<br>The value contains a maximum of 16 characters. |
| provisioning_status | String  | Specifies the provisioning status of the load balancer.<br>The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>This parameter is reserved. The default value is <b>ACTIVE</b> .<br>The value contains a maximum of 16 characters.                                |
| admin_state_up      | Boolean | Specifies the administrative status of the load balancer.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                |
| tags                | Array   | Lists load balancer tags.                                                                                                                                                                                                                                                                  |
| created_at          | String  | Specifies the time when the load balancer was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                                                          |
| updated_at          | String  | Specifies the time when the load balancer was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.<br>The value contains a maximum of 19 characters.                                                                                                                          |

| Parameter             | Type   | Description                                                                                                                                                                                                                                                       |
|-----------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enterprise_project_id | String | Specifies the enterprise project ID. When creating a load balancer, you can assign an enterprise project to the load balancer.<br><br>The value is character string <b>0</b> or a UUID with hyphens (-). Value <b>0</b> indicates the default enterprise project. |

**Table 6-37 listeners** parameter description

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

**Table 6-38 pools** parameter description

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

## Example Request

- Example request  
PUT https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/loadbalancers/1e11b74e-30b7-4b78-b09b-84aec4a04487  

```
{
 "loadbalancer": {
 "name": "lb_update_test",
 "description": "lb update test"
 }
}
```

## Example Response

- Example response  

```
{
 "loadbalancer": {
 "description": "simple lb2",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "provisioning_status": "ACTIVE",
 "vip_subnet_id": "823d5866-6e30-45c2-9b1a-a1ebc3757fdb",
 "listeners": [
 {
 "id": "37ffe679-08ef-436e-b6bd-cf66fb4c3de2"
 }
],
 "vip_address": "192.172.1.68",
```



```
"vip_port_id": "f42e3019-67f7-4d2a-8d1c-af49e7c22fa6",
"provider": "vlb",
"tags": [],
"pools": [
 {
 "id": "75c4f2d4-a213-4408-9fa8-d64708e8d1df"
 }
],
"id": "c32a9f9a-0cc6-4f38-bb9c-cde79a533c19",
"operating_status": "ONLINE",
"name": "loadbalancer-test2",
"created_at": "2018-07-25T01:54:13",
"updated_at": "2018-07-25T01:54:14",
"enterprise_project_id": "0aad99bc-f5f6-4f78-8404-c598d76b0ed2"
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.1.6 Deleting a Load Balancer

### Function

This API is used to delete a load balancer by ID.

### Constraints

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

### URI

DELETE /v2/{project\_id}/elb/loadbalancers/{loadbalancer\_id}

**Table 6-39** Parameter description

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

### Request

None

### Response

None

## Example Request

- Example request  
DELETE https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/loadbalancers/  
90f7c765-0bc9-47c4-8513-4cc0c264c8f8

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6.2 Listener

## 6.2.1 Adding a Listener

### Function

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

### Constraints

- Only the administrator can specify **connection\_limit**.
- The value of **protocol** can be **TCP**, **HTTP**, **UDP**, or **TERMINATED\_HTTPS**.

### URI

POST /v2/{project\_id}/elb/listeners

**Table 6-40** Parameter description

| Parameter  | Mandato<br>ry | Type   | Description               |
|------------|---------------|--------|---------------------------|
| project_id | Yes           | String | Specifies the project ID. |

### Request

**Table 6-41** Parameter description

| Parameter | Man<br>dato<br>ry | Type       | Description                                                           |
|-----------|-------------------|------------|-----------------------------------------------------------------------|
| listener  | Yes               | Obje<br>ct | Specifies the listener. For details, see <a href="#">Table 6-42</a> . |

**Table 6-42 listener** parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                  |
|------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id        | No        | String  | Specifies the ID of the project where the listener is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                         |
| name             | No        | String  | Specifies the listener name.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                          |
| description      | No        | String  | Provides supplementary information about the listener.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                |
| protocol         | Yes       | String  | Specifies the protocol used by the listener.<br><br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                    |
| protocol_port    | Yes       | Integer | Specifies the port used by the listener.<br><br>The port number ranges from 1 to 65535.<br><b>NOTE</b><br>If the protocol used by the listener is UDP, the port number cannot be 4789.                                                                       |
| loadbalancer_id  | Yes       | String  | Specifies the ID of the associated load balancer.                                                                                                                                                                                                            |
| connection_limit | No        | Integer | Specifies the maximum number of connections.<br><br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br><br>This parameter is reserved. |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                            |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                                                                                                                                                                     |
| http2_enable   | No        | Boolean | Specifies whether to use HTTP/2. The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: HTTP/2 will be used.</li> <li>• <b>false</b>: HTTP/2 will not be used.</li> </ul> The default value is <b>false</b> .<br>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |

| Parameter       | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_pool_id | No        | String | <p>Specifies the ID of the associated backend server group.</p> <p>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p> <p>The <b>default_pool_id</b> parameter has the following constraints:</p> <ul style="list-style-type: none"><li>• Its value cannot be the ID of any backend server group of other listeners.</li><li>• Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.</li></ul> <p>The relationships between the protocol of the backend server group and the protocol used by the listener are as follows:</p> <ul style="list-style-type: none"><li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li><li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li><li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li></ul> |

| Parameter                   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_tls_container_ref   | No        | String | <p>Specifies the ID of the server certificate used by the listener.</p> <p>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b>.</p> <p>The default value is <b>null</b> when <b>protocol</b> is not set to <b>TERMINATED_HTTPS</b>.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b>.</p> |
| client_ca_tls_container_ref | No        | String | <p>Specifies the ID of the CA certificate used by the listener.</p> <p>The default value is <b>null</b>.</p> <p>The value contains a maximum of 128 characters.</p> <p><b>NOTE</b><br/>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                                                                                           |
| sni_container_refs          | No        | Array  | <p>Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.</p> <p>If the parameter value is an empty list, the SNI feature is disabled.</p> <p>The default value is <code>[]</code>.</p> <p><b>NOTE</b><br/>This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b>.</p>                                                                                             |

## Response

**Table 6-43** Response parameters

| Parameter | Type   | Description                                                           |
|-----------|--------|-----------------------------------------------------------------------|
| listener  | Object | Specifies the listener. For details, see <a href="#">Table 6-44</a> . |

**Table 6-44 listener** parameter description

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                          |
|------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the listener ID.                                                                                                                                                                                                                                                                                           |
| tenant_id        | String  | Specifies the ID of the project where the listener is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                       |
| name             | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                      |
| description      | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                            |
| protocol         | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                                                                                |
| protocol_port    | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.                                                                                                                                                                                                                                  |
| loadbalancers    | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 6-45</a> .                                                                                                                                                                                                                      |
| connection_limit | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                 |
| admin_state_up   | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                                                                                                                   |
| http2_enable     | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |

| Parameter                   | Type   | Description                                                                                                                                                                                                                                                                 |
|-----------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_pool_id             | String | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group. |
| default_tls_container_ref   | String | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">6.9 Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .<br>The value contains a maximum of 128 characters.              |
| client_ca_tls_container_ref | String | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.<br>For details, see <a href="#">6.9 Certificate</a> .                                                                                                       |
| sni_container_refs          | Array  | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.                                                                                                   |
| tags                        | Array  | Tags the listener.                                                                                                                                                                                                                                                          |
| created_at                  | String | Specifies the time when the listener was created. YYYY-MM-DDTHH:MM:SS                                                                                                                                                                                                       |
| updated_at                  | String | Specifies the time when the listener was updated. YYYY-MM-DDTHH:MM:SS                                                                                                                                                                                                       |

**Table 6-45 loadbalancers** parameter description

| Parameter | Mandatory | Type   | Description                                       |
|-----------|-----------|--------|---------------------------------------------------|
| id        | Yes       | String | Specifies the ID of the associated load balancer. |

## Example Request

- Example request 1: Adding a TCP listener  

```
POST https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/listeners
{
```



```
"listener": {
 "protocol_port": 80,
 "protocol": "TCP",
 "loadbalancer_id": "0416b6f1-877f-4a51-987e-978b3f084253",
 "name": "listener-test",

 "admin_state_up": true
}
```

- Example request 2: Adding a listener with **protocol** set to **TERMINATED\_HTTPS**

POST https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/listeners

```
{
 "listener": {
 "protocol_port": 25,
 "protocol": "TERMINATED_HTTPS",
 "default_tls_container_ref": "02dcd56799e045bf8b131533cc911dd6",
 "loadbalancer_id": "0416b6f1-877f-4a51-987e-978b3f084253",
 "name": "listener-test",
 "admin_state_up": true
 }
}
```

## Example Response

- Example response 1

```
{
 "listener": {
 "protocol_port": 80,
 "protocol": "TCP",
 "description": "",
 "client_ca_tls_container_ref": null,
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "0416b6f1-877f-4a51-987e-978b3f084253"
 }
],
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",

 "sni_container_refs": [],
 "connection_limit": -1,
 "default_pool_id": null,
 "tags": [],
 "id": "b7f32b52-6f17-4b16-9ec8-063d71b653ce",
 "name": "listener-test",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
 }
}
```

- Example response 2

```
{
 "listener": {
 "insert_headers": {},
 "protocol_port": 25,
 "protocol": "TERMINATED_HTTPS",
 "description": "",
 "default_tls_container_ref": "02dcd56799e045bf8b131533cc911dd6",
 "sni_container_refs": [],
 "loadbalancers": [
 {
 "id": "0416b6f1-877f-4a51-987e-978b3f084253"
 }
],
 },
}
```

```
"tenant_id": "601240b9c5c94059b63d484c92cfe308",

"created_at": "2019-01-21T12:38:31",
"client_ca_tls_container_ref": null,
"connection_limit": -1,
"updated_at": "2019-01-21T12:38:31",
"http2_enable": false,
"admin_state_up": true,
"default_pool_id": null,
"id": "b56634cd-5ba8-460e-b5a2-6de5ba8eaf60",
"tags": [],
"name": "listener-test"
}
}
```

- Example response 3

```
{
 "listener": {
 "insert_headers": {},
 "protocol_port": 27,
 "protocol": "TERMINATED_HTTPS",
 "description": "",
 "default_tls_container_ref": "02dcd56799e045bf8b131533cc911dd6",
 "sni_container_refs": [
 "5882325fd6dd4b95a88d33238d293a0f",
 "e15d1b5000474adca383c3cd9ddc06d4"
],
 "loadbalancers": [
 {
 "id": "6bb85e33-4953-457a-85a9-336d76125b7b"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "created_at": "2019-01-21T12:43:55",
 "client_ca_tls_container_ref": null,
 "connection_limit": -1,
 "updated_at": "2019-01-21T12:43:55",
 "http2_enable": false,
 "admin_state_up": true,
 "default_pool_id": null,
 "id": "b2cfda5b-52fe-4320-8845-34e8d4dac2c7",
 "tags": [],
 "name": "listener-test"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.2.2 Querying Details of a Listener

### Function

This API is used to query details about a listener using its ID.

### URI

GET /v2/{project\_id}/elb/listeners/{listener\_id}

**Table 6-46** Parameter description

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

## Request

None

## Response

**Table 6-47** Response parameters

| Parameter | Type   | Description                                                           |
|-----------|--------|-----------------------------------------------------------------------|
| listener  | Object | Specifies the listener. For details, see <a href="#">Table 6-48</a> . |

**Table 6-48** listener parameter description

| Parameter     | Type    | Description                                                                                                                           |
|---------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| id            | String  | Specifies the listener ID.                                                                                                            |
| tenant_id     | String  | Specifies the ID of the project where the listener is used.<br>The value contains a maximum of 255 characters.                        |
| name          | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                       |
| description   | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                             |
| protocol      | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> . |
| protocol_port | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.                                                   |

| Parameter                   | Type    | Description                                                                                                                                                                                                                                                                                                          |
|-----------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| loadbalancers               | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 6-45</a> .                                                                                                                                                                                                                      |
| connection_limit            | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                 |
| admin_state_up              | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                                                                                                                   |
| http2_enable                | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id             | String  | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                          |
| default_tls_container_ref   | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">6.9 Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .<br>The value contains a maximum of 128 characters.                                                       |
| client_ca_tls_container_ref | String  | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.<br>For details, see <a href="#">6.9 Certificate</a> .                                                                                                                                                |

| Parameter          | Type   | Description                                                                                                                                                               |
|--------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sni_container_refs | Array  | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled. |
| tags               | Array  | Tags the listener.                                                                                                                                                        |
| created_at         | String | Specifies the time when the listener was created. YYYY-MM-DDTHH:MM:SS                                                                                                     |
| updated_at         | String | Specifies the time when the listener was updated. YYYY-MM-DDTHH:MM:SS                                                                                                     |

**Table 6-49 loadbalancers** parameter description

| Parameter | Mandatory | Type   | Description                                       |
|-----------|-----------|--------|---------------------------------------------------|
| id        | Yes       | String | Specifies the ID of the associated load balancer. |

## Example Request

- Example request  
GET [https://\[Endpoint\]/v2/1867112d054b427e808cc6096d8193a1/elb/listeners/09e64049-2ab0-4763-a8c5-f4207875dc3e](https://[Endpoint]/v2/1867112d054b427e808cc6096d8193a1/elb/listeners/09e64049-2ab0-4763-a8c5-f4207875dc3e)

## Example Response

- Example response
 

```
{
 "listener": {
 "protocol_port": 8000,
 "protocol": "TCP",
 "description": "",
 "client_ca_tls_container_ref": null,
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "3d77894d-2ffe-4411-ac0a-0d57689779b8"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",

 "sni_container_refs": [],
 "connection_limit": -1,
 "default_pool_id": "b7e53dbd-62ab-4505-a280-5c066078a5c9",
 "id": "09e64049-2ab0-4763-a8c5-f4207875dc3e",
 "tags": [],
 "name": "listener-2",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
 }
}
```

```
}
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.2.3 Querying Listeners

### Function

This API is used to query the listeners and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

You can query listeners using information such as listener ID, protocol used by the listener, port used by the listener, or backend server private IP address.

### URI

GET /v2/{project\_id}/elb/listeners

**Table 6-50** Parameter description

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

### Request

**Table 6-51** Parameter description

| Parameter | Mandatory | Type    | Description                                                                                                                                                                              |
|-----------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String  | Specifies the ID of the listener from which pagination query starts, that is, the ID of the last listener on the previous page. This parameter must be used together with <b>limit</b> . |
| limit     | No        | Integer | Specifies the number of listeners on each page. If this parameter is not set, all listeners are queried by default.                                                                      |

| Parameter                   | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| page_reverse                | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id                          | No        | String  | Specifies the listener ID.                                                                                                                                                                                                                                                                                                                                                                                                        |
| name                        | No        | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                   |
| description                 | No        | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                         |
| loadbalancer_id             | No        | String  | Specifies the ID of the associated load balancer.                                                                                                                                                                                                                                                                                                                                                                                 |
| connection_limit            | No        | Integer | Specifies the maximum number of connections.                                                                                                                                                                                                                                                                                                                                                                                      |
| admin_state_up              | No        | Boolean | Specifies the administrative status of the listener.                                                                                                                                                                                                                                                                                                                                                                              |
| default_pool_id             | No        | String  | Specifies the ID of the associated backend server group.<br><br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing.                                                                                                                                                                                                                                   |
| http2_enable                | No        | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> .<br><ul style="list-style-type: none"> <li>• <b>true</b>: HTTP/2 is used.</li> <li>• <b>false</b>: HTTP/2 is not used.</li> </ul>                                                                                                                                                                                                               |
| default_tls_certificate_ref | No        | String  | Specifies the ID of the server certificate used by the listener.                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter                   | Mandatory | Type    | Description                                                                                                                                                                                                                    |
|-----------------------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client_ca_tls_container_ref | No        | String  | Specifies the ID of the CA certificate used by the listener.                                                                                                                                                                   |
| protocol                    | No        | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                          |
| protocol_port               | No        | Integer | Specifies the port used by the listener.                                                                                                                                                                                       |
| enterprise_project_id       | No        | String  | Specifies the enterprise project ID. Enterprise projects are used for fine-grained authentication. If <b>default_pool_id</b> is transmitted, the enterprise project ID of the backend server group is used for authentication. |

## Response

**Table 6-52** Response parameters

| Parameter | Type  | Description                                                        |
|-----------|-------|--------------------------------------------------------------------|
| listeners | Array | Lists the listeners. For details, see <a href="#">Table 6-53</a> . |

**Table 6-53** listener parameter description

| Parameter   | Type   | Description                                                                                                    |
|-------------|--------|----------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the listener ID.                                                                                     |
| tenant_id   | String | Specifies the ID of the project where the listener is used.<br>The value contains a maximum of 255 characters. |
| name        | String | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                |
| description | String | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.      |



| Parameter                 | Type    | Description                                                                                                                                                                                                                                                                                                          |
|---------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol                  | String  | Specifies the protocol used by the listener. The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                                                                                   |
| protocol_port             | Integer | Specifies the port used by the listener. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                     |
| loadbalancers             | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 6-45</a> .                                                                                                                                                                                                                      |
| connection_limit          | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                 |
| admin_state_up            | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                                                                                                                   |
| http2_enable              | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id           | String  | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                          |
| default_tls_container_ref | String  | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">6.9 Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .<br>The value contains a maximum of 128 characters.                                                       |

| Parameter                   | Type   | Description                                                                                                                                                               |
|-----------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| client_ca_tls_container_ref | String | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.<br>For details, see <a href="#">6.9 Certificate</a> .     |
| sni_container_refs          | Array  | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled. |
| tags                        | Array  | Tags the listener.                                                                                                                                                        |
| created_at                  | String | Specifies the time when the listener was created. YYYY-MM-DDTHH:MM:SS                                                                                                     |
| updated_at                  | String | Specifies the time when the listener was updated. YYYY-MM-DDTHH:MM:SS                                                                                                     |

**Table 6-54 loadbalancers** parameter description

| Parameter | Mandatory | Type   | Description                                       |
|-----------|-----------|--------|---------------------------------------------------|
| id        | Yes       | String | Specifies the ID of the associated load balancer. |

## Example Request

- Example request 1: Querying all listeners  
GET https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/listeners
- Request example 2: Querying UDP listeners  
GET https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/listeners?protocol=UDP

## Example Response

- Example response 1
 

```
{
 "listeners": [
 {
 "client_ca_tls_container_ref": null,
 "protocol": "TCP",
 "description": "",
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "bc7ba445-035a-4464-a1a3-a62cf4a14116"
 }
]
 }
],
}
```

```
"tenant_id": "601240b9c5c94059b63d484c92cfe308",
"sni_container_refs": [],
"connection_limit": -1,
"protocol_port": 80,
"default_pool_id": "ed75f16e-fcc6-403e-a3fb-4eae82005eab",
"id": "75045172-70e9-480d-9443-b8b6459948f7",
"tags": [],
"name": "listener-cb2n",
"created_at": "2018-07-25T01:54:13",
"updated_at": "2018-07-25T01:54:14"
},
{
 "client_ca_tls_container_ref": null,
 "protocol": "TCP",
 "description": "",
 "default_tls_container_ref": null,
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "165b6a38-5278-4569-b747-b2ee65ea84a4"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "sni_container_refs": [],
 "connection_limit": -1,
 "protocol_port": 8080,
 "default_pool_id": null,
 "id": "dada0003-7b0e-4de8-a4e1-1e937be2ba14",
 "tags": [],
 "name": "lsnr_name_mod",
 "created_at": "2018-07-25T01:54:13",
 "updated_at": "2018-07-25T01:54:14"
}
]
}
```

- Example response 2

```
{
 "listeners": [
 {
 "insert_headers": null,
 "protocol_port": 64809,
 "protocol": "UDP",
 "description": "",
 "default_tls_container_ref": null,
 "sni_container_refs": [],
 "loadbalancers": [
 {
 "id": "c1127125-64a9-4394-a08a-ef3be8f7ef9c"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "created_at": "2018-11-29T13:56:21",
 "client_ca_tls_container_ref": null,
 "connection_limit": -1,
 "updated_at": "2018-11-29T13:56:22",
 "http2_enable": false,
 "admin_state_up": true,
 "default_pool_id": "2f6895be-019b-4c82-9b53-c4a2ac009e20",
 "id": "5c63d176-444f-4c75-9cfe-bcb8a05a845c",
 "tags": [],
 "name": "listener-tpv8"
 }
]
}
```

```
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.2.4 Updating a Listener

### Function

This API is used to update a listener, such as listener name, description, associated backend server groups, and server certificates.

### Constraints

- If the provisioning status of the associated load balancer is not **ACTIVE**, the listener cannot be updated.
- Only the administrator can specify **connection\_limit**.
- The **default\_pool\_id** parameter has the following constraints:
  - Its value cannot be the ID of any backend server group of other listeners.
  - Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.
- The relationships between the protocol used by the listener and the protocol of the backend server group are as follows:
  - When the protocol used by the listener is **TCP**, the protocol of the backend server group must be **TCP**.
  - When the protocol used by the listener is **UDP**, the backend server group protocol must be **UDP**.
  - When the protocol used by the listener is **HTTP** or **TERMINATED\_HTTPS**, the protocol of the backend server group must be **HTTP**.

### URI

PUT /v2/{project\_id}/elb/listeners/{listener\_id}

**Table 6-55** Parameter description

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

## Request

**Table 6-56** Parameter description

| Parameter | Mandatory | Type   | Description                                                           |
|-----------|-----------|--------|-----------------------------------------------------------------------|
| listener  | Yes       | Object | Specifies the listener. For details, see <a href="#">Table 6-57</a> . |

**Table 6-57** listener parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                          |
|------------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String  | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                      |
| description      | No        | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                            |
| connection_limit | No        | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> .<br>This parameter is reserved. Only the administrator can specify the maximum number of connections.                                                                                                          |
| http2_enable     | No        | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |

| Parameter       | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_pool_id | No        | String  | <p>Specifies the ID of the associated backend server group.</p> <p>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b>, the listener has no default backend server group.</p> <p>The <b>default_pool_id</b> parameter has the following constraints:</p> <ul style="list-style-type: none"> <li>• Its value cannot be the ID of any backend server group of other listeners.</li> <li>• Its value cannot be the ID of any backend server group associated with the forwarding policies set for other listeners.</li> </ul> <p>The relationships between the protocol of the backend server group and the protocol used by the listener are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| admin_state_up  | No        | Boolean | <p>Specifies the administrative status of the listener.</p> <p>This parameter is reserved. The value can only be <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter                   | Mandatory | Type   | Description                                                                                                                                                                                                     |
|-----------------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_tls_container_ref   | No        | String | Specifies the ID of the server certificate used by the listener.<br>The value contains a maximum of 128 characters.<br><br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> . |
| client_ca_tls_container_ref | No        | String | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.                                                                                                 |
| sni_container_refs          | No        | Array  | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.<br><br>If the parameter value is an empty list, the SNI feature is disabled.                                   |

## Response

**Table 6-58** Response parameters

| Parameter | Type   | Description                                                           |
|-----------|--------|-----------------------------------------------------------------------|
| listener  | Object | Specifies the listener. For details, see <a href="#">Table 6-59</a> . |

**Table 6-59** listener parameter description

| Parameter | Type   | Description                                                                                                    |
|-----------|--------|----------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the listener ID.                                                                                     |
| tenant_id | String | Specifies the ID of the project where the listener is used.<br>The value contains a maximum of 255 characters. |
| name      | String | Specifies the listener name.<br>The value contains a maximum of 255 characters.                                |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                          |
|------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description      | String  | Provides supplementary information about the listener.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                            |
| protocol         | String  | Specifies the protocol used by the listener.<br>The value can be <b>TCP</b> , <b>HTTP</b> , <b>UDP</b> , or <b>TERMINATED_HTTPS</b> .                                                                                                                                                                                |
| protocol_port    | Integer | Specifies the port used by the listener.<br>The port number ranges from 1 to 65535.                                                                                                                                                                                                                                  |
| loadbalancers    | Array   | Specifies the ID of the associated load balancer. For details, see <a href="#">Table 6-45</a> .                                                                                                                                                                                                                      |
| connection_limit | Integer | Specifies the maximum number of connections.<br>The value ranges from <b>-1</b> to <b>2147483647</b> . The default value is <b>-1</b> , indicating that there is no restriction on the maximum number of connections.<br>This parameter is reserved.                                                                 |
| admin_state_up   | Boolean | Specifies the administrative status of the listener.<br>This parameter is reserved. Currently, the value can only be <b>true</b> .                                                                                                                                                                                   |
| http2_enable     | Boolean | Specifies whether to use HTTP/2.<br>The value can be <b>true</b> or <b>false</b> . <ul style="list-style-type: none"> <li><b>true</b>: HTTP/2 is used.</li> <li><b>false</b>: HTTP/2 is not used.</li> </ul> This parameter is valid only when the protocol used by the listener is set to <b>TERMINATED_HTTPS</b> . |
| default_pool_id  | String  | Specifies the ID of the associated backend server group.<br>If a request does not match the forwarding policy, the request is forwarded to the default backend server group for processing. If the value is <b>null</b> , the listener has no default backend server group.                                          |



| Parameter                   | Type   | Description                                                                                                                                                                                                                                                    |
|-----------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| default_tls_container_ref   | String | Specifies the ID of the server certificate used by the listener. For details, see <a href="#">6.9 Certificate</a> .<br>This parameter is mandatory when <b>protocol</b> is set to <b>TERMINATED_HTTPS</b> .<br>The value contains a maximum of 128 characters. |
| client_ca_tls_container_ref | String | Specifies the ID of the CA certificate used by the listener.<br>The value contains a maximum of 128 characters.<br>For details, see <a href="#">6.9 Certificate</a> .                                                                                          |
| sni_container_refs          | Array  | Lists the IDs of SNI certificates (server certificates with a domain name) used by the listener.<br>If the parameter value is an empty list, the SNI feature is disabled.                                                                                      |
| tags                        | Array  | Tags the listener.                                                                                                                                                                                                                                             |
| created_at                  | String | Specifies the time when the listener was created. YYYY-MM-DDTHH:MM:SS                                                                                                                                                                                          |
| updated_at                  | String | Specifies the time when the listener was updated. YYYY-MM-DDTHH:MM:SS                                                                                                                                                                                          |

**Table 6-60** loadbalancers parameter description

| Parameter | Mandatory | Type   | Description                                       |
|-----------|-----------|--------|---------------------------------------------------|
| id        | Yes       | String | Specifies the ID of the associated load balancer. |

## Example Request

- Example request: Updating a listener**  
 PUT https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/listeners/f622c150-72f5-4263-a47a-e5003c652aa3
 

```
{
 "listener": {
 "description": "my listener",
 "name": "listener-jy-test2",
 "default_pool_id": "c61310de-9a06-4f0c-850c-6f4797b9984c",
 "default_tls_container_ref": "23b58a961a4d4c95be585e98046e657a",
 "client_ca_tls_container_ref": "417a0976969f497db8cbb083bff343ba"
 }
}
```

## Example Response

- Example response

```
{
 "listener": {
 "client_ca_tls_container_ref": "417a0976969f497db8cbb083bff343ba",
 "protocol": "TERMINATED_HTTPS",
 "description": "my listener",
 "default_tls_container_ref": "23b58a961a4d4c95be585e98046e657a",
 "admin_state_up": true,
 "http2_enable": false,
 "loadbalancers": [
 {
 "id": "165b6a38-5278-4569-b747-b2ee65ea84a4"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "sni_container_refs": [],
 "connection_limit": -1,
 "protocol_port": 443,
 "tags": [],
 "default_pool_id": "c61310de-9a06-4f0c-850c-6f4797b9984c",
 "id": "f622c150-72f5-4263-a47a-e5003c652aa3",
 "name": "listener-jy-test2",
 "created_at": "2018-07-25T01:54:13",

 "updated_at": "2018-07-25T01:54:14"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.2.5 Deleting a Listener

### Function

This API is used to delete a listener by ID.

### Constraints

Before deleting the listener, delete the associated backend server groups by referring to [6.3.5 Deleting a Backend Server Group](#), or change the value of **default\_pool\_id** to **null** by referring to [6.2.4 Updating a Listener](#) and delete associated forwarding policies by referring to [6.6.5 Deleting a Forwarding Policy](#).

### URI

DELETE /v2/{project\_id}/elb/listeners/{listener\_id}

**Table 6-61** Parameter description

| Parameter  | Mandator<br>y | Type       | Description               |
|------------|---------------|------------|---------------------------|
| project_id | Yes           | Strin<br>g | Specifies the project ID. |

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

## Request

None

## Response

None

## Example Request

- Example request: Deleting a listener  
DELETE https://{Endpoint}/v2/{project\_id}/elb/listeners/35cb8516-1173-4035-8dae-0dae3453f37f

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6.3 Backend Server Group

## 6.3.1 Adding a Backend Server Group

### Function

This API is used to add a backend server group. After multiple backend servers are added to a backend server group, requests are distributed among backend servers based on the load balancing algorithm configured for the backend server group and the weight set for each backend server.

### Constraints

- If parameter **session-persistence** is configured, parameter **cookie\_name** is available only when the value of **type** is **APP\_COOKIE**.

### URI

POST /v2/{project\_id}/elb/pools

**Table 6-62** Parameter description

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

## Request

**Table 6-63** Parameter description

| Parameter | Mandatory | Type   | Description                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Yes       | Object | Specifies the backend server group. For details, see <a href="#">Table 6-64</a> . |

**Table 6-64** pool parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                      |
|-------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id   | No        | String | Specifies the ID of the project where the backend server group is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters. |
| name        | No        | String | Specifies the name of the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                                           |
| description | No        | String | Provides supplementary information about the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                        |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol       | Yes       | String  | <p>Specifies the protocol that the backend server group uses to receive requests.</p> <p>TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| lb_algorithm   | Yes       | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> <p>When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</p>                                                                                                                                                                                                                            |
| admin_state_up | No        | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Parameter           | Mandatory | Type   | Description                                                                                                                                                                      |
|---------------------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| listener_id         | No        | String | Specifies the ID of the listener associated with the backend server group.<br>Specify either <b>listener_id</b> or <b>loadbalancer_id</b> , or both of them.                     |
| loadbalancer_id     | No        | String | Specifies the ID of the load balancer associated with the backend server group.<br>Specify either <b>listener_id</b> or <b>loadbalancer_id</b> , or both of them.                |
| session_persistence | No        | Object | Specifies the sticky session timeout duration in minutes. For details, see <a href="#">Table 6-65</a> .<br>If the value is <b>null</b> , the sticky session feature is disabled. |

**Table 6-65 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>• When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> |

## Response

**Table 6-66** Parameter description

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 6-67</a> . |

**Table 6-67** pool parameter description

| Parameter   | Type   | Description                                                                                                                |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                              |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters. |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                         |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.      |



| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol         | String  | <p>Specifies the protocol that the backend server group uses to receive requests. TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| lb_algorithm     | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li> </ul>                                                                                                                                                                                                                            |
| members          | Array   | Lists the IDs of backend servers in the backend server group. For details, see <a href="#">Table 6-68</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| healthmonitor_id | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| admin_state_up   | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| listeners        | Array   | Lists the IDs of listeners associated with the backend server group. For details, see <a href="#">Table 6-69</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                |
|---------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| loadbalancers       | Array  | Lists the IDs of load balancers associated with the backend server group. For details, see <a href="#">Table 6-70</a> .                                                                                                                                                                                                    |
| session_persistence | Object | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 6-71</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> . |

**Table 6-68 members** parameter description

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

**Table 6-69 listeners** parameter description

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

**Table 6-70 loadbalancers** parameter description

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

**Table 6-71 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> |

## Example Request

- Example request 1
  - Step 1: Query the subnet ID and IP address using the server ID. **device\_id** in the request indicates the server ID. Obtain the values of **subnet\_id** and **ip\_address** of the primary NIC (the port for which **primary\_interface** is **true**) in the response body.

GET https://{VPCEndpoint}/v2.0/ports?device\_id=f738c464-b5c2-45df-86c0-7f436620cd54

Example response

```
{
 "ports": [
 {
 "id": "94971c39-46f0-443a-85e8-31cb7497c78e",
 "name": "",
 "status": "ACTIVE",
 "admin_state_up": true,
 "fixed_ips": [
 {
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "ip_address": "192.168.44.11"
 }
],
 "mac_address": "fa:16:3e:5c:d2:57",
 "network_id": "1b76b9c2-9b7e-4ced-81bd-d13f7389d7c9",
 "tenant_id": "04dd36f978800fe22f9bc00bea090736",
 "project_id": "04dd36f978800fe22f9bc00bea090736",
 "device_id": "f738c464-b5c2-45df-86c0-7f436620cd54",
 "device_owner": "compute:cn-north-4a",
 "security_groups": [
 "a10dfc31-0055-4b84-b36e-1291b918125c",
 "7a233393-5be2-4dff-8360-1558dd950f6e"
],
 "extra_dhcp_opts": [],
 "allowed_address_pairs": [],
 "binding:vnic_type": "normal",
 "binding:vif_details": {
 "primary_interface": true
 },
 "binding:profile": {},
 "port_security_enabled": true,
 }
]
}
```

```

 "created_at": "2019-11-12T17:17:51",
 "updated_at": "2019-11-12T17:17:51"
 }
}

```

- Step 2: Add a backend server group with the sticky session feature disabled.

```

POST https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/pools

{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "loadbalancer_id": "63ad9dfe-4750-479f-9630-ada43ccc8117",
 "protocol": "HTTP"
 }
}

```

- Example request 2: Adding a backend server group with the value of **type** set to **APP\_COOKIE**

```

POST https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/pools

```

```

{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "loadbalancer_id": "370fb112-e920-486a-b051-1d0d30704dd3",
 "protocol": "HTTP",
 "session_persistence": {
 "cookie_name": "my_cookie",
 "type": "APP_COOKIE",
 "persistence_timeout": 1
 },
 "admin_state_up": true
 }
}

```

- Example request 3: Adding an HTTP backend server group with the value of **type** set to **HTTP\_COOKIE**

```

POST https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/pools

```

```

{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "loadbalancer_id": "63ad9dfe-4750-479f-9630-ada43ccc8117",
 "protocol": "HTTP",
 "session_persistence": {
 "type": "HTTP_COOKIE"
 }
 }
}

```

## Example Response

- Example response 1

```

{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "protocol": "HTTP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [],

```

```
"members": [],
 "id": "4e496951-befb-47bf-9573-c1cd11825c07",
 "name": ""
}
}
```

- Example response 2

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "protocol": "HTTP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "6b041b9e-976b-40ba-b075-375be6110b53"
 }
],
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "session_persistence": {
 "cookie_name": "my_cookie",
 "type": "APP_COOKIE",
 "persistence_timeout": 1
 },
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "370fb112-e920-486a-b051-1d0d30704dd3"
 }
],
 "members": [],
 "id": "307f8968-9474-4d0c-8434-66be09dabcc1",
 "name": ""
 }
}
```

- Example response 3

```
{
 "pool": {
 "lb_algorithm": "ROUND_ROBIN",
 "protocol": "HTTP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "63ad9dfe-4750-479f-9630-ada43ccc8117"
 }
],
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "session_persistence": {
 "persistence_timeout": 1440,
 "cookie_name": null,
 "type": "HTTP_COOKIE"
 },
 "healthmonitor_id": null,
 "listeners": [],
 "members": [],
 "id": "d46eab56-d76b-4cd3-8952-3c3c4cf113aa",
 "name": ""
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.3.2 Querying Backend Server Groups

### Function

This API is used to query the backend server groups and display them in a list. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### URI

GET /v2/{project\_id}/elb/pools

**Table 6-72** Parameter description

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

### Request

**Table 6-73** Parameter description

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                                                                                                             |
|-----------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String  | Specifies the ID of the backend server group from which pagination query starts, that is, the ID of the last backend server group on the previous page. If this parameter is not specified, the first page will be queried.<br>This parameter must be used together with <b>limit</b> . |
| limit     | No        | Integer | Specifies the number of backend server groups on each page. If this parameter is not set, all backend server groups are queried by default.                                                                                                                                             |

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| page_reverse     | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id               | No        | String  | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                     |
| name             | No        | String  | Specifies the name of the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                            |
| description      | No        | String  | Provides supplementary information about the backend server group.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                         |
| healthmonitor_id | No        | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                     |
| loadbalancer_id  | No        | String  | Specifies the ID of the load balancer associated with the backend server group.                                                                                                                                                                                                                                                                                                                                                   |
| protocol         | No        | String  | Specifies the protocol that the backend server group uses to receive requests.<br><br>TCP, UDP, and HTTP are supported.                                                                                                                                                                                                                                                                                                           |



| Parameter             | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm          | No        | String | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> <p>When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid. For details about parameter <b>weight</b>, see <a href="#">Response</a>.</p> |
| member_address        | No        | String | Lists the IDs of backend servers in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| member_device_id      | No        | String | Specifies the ID of the ECS corresponding to the backend server in the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| enterprise_project_id | No        | String | <p>Specifies the enterprise project ID. Enterprise projects are used for fine-grained authentication.</p> <ul style="list-style-type: none"> <li>• If <b>loadbalancer_id</b> is transmitted, the ID of the enterprise project to which the load balancer is assigned is used for authentication.</li> <li>• If <b>loadbalancer_id</b> is not transmitted but <b>healthmonitor_id</b> is transmitted, the ID of the enterprise project to which the health check is assigned is used for authentication.</li> </ul>                                                                                                                      |

## Response

**Table 6-74** Parameter description

| Parameter | Type  | Description                                                                       |
|-----------|-------|-----------------------------------------------------------------------------------|
| pools     | Array | Specifies the backend server group. For details, see <a href="#">Table 6-75</a> . |

**Table 6-75** pool parameter description

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| protocol    | String | Specifies the protocol that the backend server group uses to receive requests.<br>TCP, UDP, and HTTP are supported.<br>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows: <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| lb_algorithm        | String  | Specifies the load balancing algorithm of the backend server group.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li> </ul> |
| members             | Array   | Lists the IDs of backend servers in the backend server group. For details, see <a href="#">Table 6-68</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| healthmonitor_id    | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| admin_state_up      | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                           |
| listeners           | Array   | Lists the IDs of listeners associated with the backend server group. For details, see <a href="#">Table 6-69</a> .                                                                                                                                                                                                                                                                                                                                                                                                                           |
| loadbalancers       | Array   | Lists the IDs of load balancers associated with the backend server group. For details, see <a href="#">Table 6-70</a> .                                                                                                                                                                                                                                                                                                                                                                                                                      |
| session_persistence | Object  | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 6-71</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> .                                                                                                                                                                                                                   |

**Table 6-76** members parameter description

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

**Table 6-77 listeners** parameter description

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

**Table 6-78 loadbalancers** parameter description

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

**Table 6-79 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>• When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> |

### Example Request

- Example request 1: Querying all backend server groups  
GET https://{Endpoint}/v2/1867112d054b427e808cc6096d8193a1/elb/pools
- Example request 2: Querying backend server groups whose load balancing algorithm is **SOURCE\_IP**  
GET https://{Endpoint}/v2/1867112d054b427e808cc6096d8193a1/elb/pools?lb\_algorithm=SOURCE\_IP

### Example Response

- Example response 1
 

```
{
 "pools": [
 {
 "lb_algorithm": "SOURCE_IP",
 "protocol": "TCP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "07d28d4a-4899-40a3-a939-5d09d69019e1"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "1b421c2d-7e78-4a78-9ee4-c8ccba41f15b"
 }
],
 "members": [
 {
 "id": "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
 },
 {
 "id": "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
 }
],
 "id": "3a9f50bb-f041-4eac-a117-82472d8a0007",
 "name": "my-pool"
 }
]
}
```

```

 }
]
}

```

- Example response 2
 

```

{
 "pools": [
 {
 "lb_algorithm": "SOURCE_IP",
 "protocol": "TCP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "07d28d4a-4899-40a3-a939-5d09d69019e1"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "1b421c2d-7e78-4a78-9ee4-c8ccba41f15b"
 }
],
 "members": [
 {
 "id": "88f9c079-29cb-435a-b98f-0c5c0b90c2bd"
 },
 {
 "id": "2f4c9644-d5d2-4cf8-a3c0-944239a4f58c"
 }
],
 "id": "3a9f50bb-f041-4eac-a117-82472d8a0007",
 "name": "my-pool"
 }
]
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.3.3 Querying Details of a Backend Server Group

### Function

This API is used to query details about a backend server group using its ID.

### URI

GET /v2/{project\_id}/elb/pools/{pool\_id}

**Table 6-80** Parameter description

| 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. |

## Request

None

## Response

**Table 6-81** Response parameters

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 6-82</a> . |

**Table 6-82** pool parameter description

| Parameter   | Type   | Description                                                                                                                |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                              |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters. |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                         |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.      |



| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol         | String  | <p>Specifies the protocol that the backend server group uses to receive requests. TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| lb_algorithm     | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li> </ul>                                                                                                                                                                                                                            |
| members          | Array   | Lists the IDs of backend servers in the backend server group. For details, see <a href="#">Table 6-68</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| healthmonitor_id | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| admin_state_up   | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| listeners        | Array   | Lists the IDs of listeners associated with the backend server group. For details, see <a href="#">Table 6-69</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                |
|---------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| loadbalancers       | Array  | Lists the IDs of load balancers associated with the backend server group. For details, see <a href="#">Table 6-70</a> .                                                                                                                                                                                                    |
| session_persistence | Object | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 6-71</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> . |

**Table 6-83 members** parameter description

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

**Table 6-84 listeners** parameter description

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

**Table 6-85 loadbalancers** parameter description

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

**Table 6-86 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"><li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li><li>• When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li></ul> |

## Example Request

- Example request: Querying details of a backend server group  
GET https://{Endpoint}/v2/1867112d054b427e808cc6096d8193a1/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332

## Example Response

- Example response 1

```
{
 "pool": {
 "lb_algorithm": "SOURCE_IP",
 "protocol": "TCP",
 "description": "",
 "admin_state_up": true,
 "loadbalancers": [
 {
 "id": "6f52004c-3fe9-4c09-b8ce-ed9d9c74a3b1"
 }
],
 "tenant_id": "1867112d054b427e808cc6096d8193a1",
 "session_persistence": null,
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "6e29b2cd-4e53-40f6-ae7b-29e918de67f2"
 }
],
 "members": [],
 "id": "5a9a3e9e-d1aa-448e-af37-a70171f2a332",
 "name": "my-pool"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.3.4 Updating a Backend Server Group

### Function

This API is used to update a backend server group.

### Constraints

If the provisioning status of the load balancer associated with a backend server group is not **ACTIVE**, the backend server group cannot be updated.

### URI

PUT /v2/{project\_id}/elb/pools/{pool\_id}

**Table 6-87** Parameter description

| 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

**Table 6-88** Parameter description

| Parameter | Mandatory | Type   | Description                                                                       |
|-----------|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Yes       | Object | Specifies the backend server group. For details, see <a href="#">Table 6-89</a> . |

**Table 6-89** pool parameter description

| Parameter | Mandatory | Type   | Description                                                                                        |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------|
| name      | No        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters. |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description         | No        | String  | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| lb_algorithm        | No        | String  | Specifies the load balancing algorithm of the backend server group.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>● <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>● <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>● <b>SOURCE_IP</b>: indicates the source IP hash algorithm.</li> </ul> When the value is <b>SOURCE_IP</b> , the weights of backend servers in the server group are invalid. |
| admin_state_up      | No        | Boolean | Specifies the administrative status of the backend server group.<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                            |
| session_persistence | No        | Object  | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 6-90</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> .                                                                                                                                                                                                                    |

**Table 6-90 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>• When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> |

## Response

**Table 6-91** Response parameters

| Parameter | Type   | Description                                                                       |
|-----------|--------|-----------------------------------------------------------------------------------|
| pool      | Object | Specifies the backend server group. For details, see <a href="#">Table 6-92</a> . |

**Table 6-92** pool parameter description

| Parameter   | Type   | Description                                                                                                                |
|-------------|--------|----------------------------------------------------------------------------------------------------------------------------|
| id          | String | Specifies the ID of the backend server group.                                                                              |
| tenant_id   | String | Specifies the ID of the project where the backend server group is used.<br>The value contains a maximum of 255 characters. |
| name        | String | Specifies the name of the backend server group.<br>The value contains a maximum of 255 characters.                         |
| description | String | Provides supplementary information about the backend server group.<br>The value contains a maximum of 255 characters.      |



| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol         | String  | <p>Specifies the protocol that the backend server group uses to receive requests. TCP, UDP, and HTTP are supported.</p> <p>When a backend server group is associated with a listener, the relationships between the protocol used by the listener and the protocol of the backend server group are as follows:</p> <ul style="list-style-type: none"> <li>• When the protocol used by the listener is <b>UDP</b>, the protocol of the backend server group must be <b>UDP</b>.</li> <li>• When the protocol used by the listener is <b>TCP</b>, the protocol of the backend server group must be <b>TCP</b>.</li> <li>• When the protocol used by the listener is <b>HTTP</b> or <b>TERMINATED_HTTPS</b>, the protocol of the backend server group must be <b>HTTP</b>.</li> </ul> |
| lb_algorithm     | String  | <p>Specifies the load balancing algorithm of the backend server group.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>ROUND_ROBIN</b>: indicates the weighted round robin algorithm.</li> <li>• <b>LEAST_CONNECTIONS</b>: indicates the weighted least connections algorithm.</li> <li>• <b>SOURCE_IP</b>: indicates the source IP hash algorithm. When the value is <b>SOURCE_IP</b>, the weights of backend servers in the server group are invalid.</li> </ul>                                                                                                                                                                                                                            |
| members          | Array   | Lists the IDs of backend servers in the backend server group. For details, see <a href="#">Table 6-68</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| healthmonitor_id | String  | Specifies the ID of the health check configured for the backend server group.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| admin_state_up   | Boolean | <p>Specifies the administrative status of the backend server group.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| listeners        | Array   | Lists the IDs of listeners associated with the backend server group. For details, see <a href="#">Table 6-69</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                |
|---------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| loadbalancers       | Array  | Lists the IDs of load balancers associated with the backend server group. For details, see <a href="#">Table 6-70</a> .                                                                                                                                                                                                    |
| session_persistence | Object | Specifies whether to enable the sticky session feature. For details, see <a href="#">Table 6-71</a> .<br>Once the sticky session feature is enabled, requests from the same client are sent to the same backend server within the specified period.<br>When this feature is disabled, the parameter value is <b>null</b> . |

**Table 6-93 members** parameter description

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

**Table 6-94 listeners** parameter description

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

**Table 6-95 loadbalancers** parameter description

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

**Table 6-96 session\_persistence** parameter description

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type        | Yes       | String | <p>Specifies the sticky session type.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>SOURCE_IP</b>: Requests are distributed based on the client's IP address. Requests from the same IP address are sent to the same backend server.</li> <li>• <b>HTTP_COOKIE</b>: When the client sends a request for the first time, the load balancer automatically generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to the backend server that processes the first request.</li> <li>• <b>APP_COOKIE</b>: When the client sends a request for the first time, the backend server that receives the request generates a cookie and inserts the cookie into the response message. Subsequent requests are sent to this backend server.</li> </ul> <p>When the protocol of the backend server group is TCP, only <b>SOURCE_IP</b> takes effect. When the protocol of the backend server group is HTTP, only <b>HTTP_COOKIE</b> or <b>APP_COOKIE</b> takes effect.</p> |
| cookie_name | No        | String | <p>Specifies the cookie name.</p> <p>This parameter is mandatory when the sticky session type is <b>APP_COOKIE</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter           | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| persistence_timeout | No        | Integer | <p>Specifies the sticky session timeout duration in minutes.</p> <p>This parameter is invalid when <b>type</b> is set to <b>APP_COOKIE</b>.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>When the protocol of the backend server group is TCP or UDP, the value ranges from <b>1</b> to <b>60</b>.</li> <li>When the protocol of the backend server group is HTTP, the value ranges from <b>1</b> to <b>1440</b>.</li> </ul> |

### Example Request

- Example request: Updating the name, description, and load balancing algorithm of a backend server group

PUT <https://{Endpoint}/v2/1a3e005cf9ce40308c900bcb08e5320c/elb/pools/12ff63af-4127-4074-a251-bcb2ecc53ebe>

```
{
 "pool": {
 "name": "pool2",
 "description": "pool two",
 "lb_algorithm": "LEAST_CONNECTIONS"
 }
}
```

### Example Response

- Example response 1

```
{
 "pool": {
 "lb_algorithm": "LEAST_CONNECTIONS",
 "protocol": "HTTP",
 "description": "pool two",
 "admin_state_up": false,
 "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",
 "session_persistence": {
 "cookie_name": null,
 "type": "HTTP_COOKIE",
 "persistence_timeout": 1
 },
 "healthmonitor_id": null,
 "listeners": [
 {
 "id": "39de4d56-d663-46e5-85a1-5b9d5fa17829"
 }
],
 "members": [],
 "id": "12ff63af-4127-4074-a251-bcb2ecc53ebe",
 "name": "pool2"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.3.5 Deleting a Backend Server Group

### Function

This API is used to delete a backend server group.

### Constraints

Before deleting a backend server group, remove all backend servers, delete the health check, and disassociate forwarding policies from the backend server group by changing the value of **redirect\_pool\_id** to **null**. For details, see [6.6.4 Updating a Forwarding Policy](#).

### URI

DELETE /v2/{project\_id}/elb/pools/{pool\_id}

**Table 6-97** Parameter description

| 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

None

### Response

None

### Example Request

- Example request: Deleting a backend server group  
DELETE https://{Endpoint}/v2/1a3e005cf9ce40308c900bcb08e5320c/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332

### Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6.4 Backend Server

## 6.4.1 Adding a Backend Server

### Function

This API is used to add a backend server to a specific backend server group. After a backend server group is added to a listener, traffic is distributed to backend servers in this server group using the specified load balancing algorithm.

### Constraints

Two backend servers in a backend server group cannot have the same private IP address or port number.

The subnet specified during server creation must be in the same VPC as the subnet from which the private IP address of the load balancer is assigned.

### URI

POST /v2/{project\_id}/elb/pools/{pool\_id}/members

**Table 6-98** Parameter description

| 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

**Table 6-99** Parameter description

| Parameter | Mandatory | Type   | Description                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------|
| member    | Yes       | Object | Specifies the backend server. For details, see <a href="#">Table 6-100</a> . |

**Table 6-100 member** parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | Specifies the ID of the project where the backend server is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                 |
| name           | No        | String  | Specifies the backend server name. The value is an empty character string by default.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                               |
| address        | Yes       | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br><br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br><br>The value contains a maximum of 64 characters.                                                                                                                 |
| protocol_port  | Yes       | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                                                                                                     |
| subnet_id      | Yes       | String  | Specifies the ID of the subnet where the backend server works.<br><br>The private IP address of the backend server is in this subnet.<br><br>Only IPv4 subnets are supported.                                                                                                                                                                                                                              |
| admin_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>Currently, the value can only be <b>true</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |

| Parameter | Mandatory | Type    | Description                                                                                                                                                                                        |
|-----------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| weight    | No        | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> . |

## Response

**Table 6-101** Parameter description

| Parameter | Type   | Description                                                                  |
|-----------|--------|------------------------------------------------------------------------------|
| member    | Object | Specifies the backend server. For details, see <a href="#">Table 6-102</a> . |

**Table 6-102 member** parameter description

| Parameter | Type   | Description                                                                                                                                                                                                                                                                        |
|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.                                                            |
| tenant_id | String | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                               |
| name      | String | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                              |
| address   | String | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters. |



| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protocol_port    | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| subnet_id        | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br>IPv6 subnets are not supported.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| admin_state_up   | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br>Currently, the value can only be <b>true</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> .                                                                                                                                                                                                                                                       |
| weight           | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| operating_status | String  | Specifies the health check result of the backend server. The value can be one of the following: <ul style="list-style-type: none"> <li>• <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li> <li>• <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li> <li>• <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li> <li>• The value contains a maximum of 16 characters.</li> </ul> |

### Example Request

- Step 1: Query the subnet ID and IP address using the server ID. **device\_id** in the request indicates the server ID. Obtain the values of **subnet\_id** and

**ip\_address** of the primary NIC (the port for which **primary\_interface** is **true**) in the response body.

GET https://{VPCEndpoint}/v2.0/ports?device\_id=f738c464-b5c2-45df-86c0-7f436620cd54

Example response

```
{
 "ports": [
 {
 "id": "94971c39-46f0-443a-85e8-31cb7497c78e",
 "name": "",
 "status": "ACTIVE",
 "admin_state_up": true,
 "fixed_ips": [
 {
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "ip_address": "192.168.44.11"
 }
],
 "mac_address": "fa:16:3e:5c:d2:57",
 "network_id": "1b76b9c2-9b7e-4ced-81bd-d13f7389d7c9",
 "tenant_id": "04dd36f978800fe22f9bc00bea090736",
 "project_id": "04dd36f978800fe22f9bc00bea090736",
 "device_id": "f738c464-b5c2-45df-86c0-7f436620cd54",
 "device_owner": "compute:cn-north-4a",
 "security_groups": [
 "a10dfc31-0055-4b84-b36e-1291b918125c",
 "7a233393-5be2-4dff-8360-1558dd950f6e"
],
 "extra_dhcp_opts": [],
 "allowed_address_pairs": [],
 "binding:vnic_type": "normal",
 "binding:vif_details": {
 "primary_interface": true
 },
 "binding:profile": {},
 "port_security_enabled": true,
 "created_at": "2019-11-12T17:17:51",
 "updated_at": "2019-11-12T17:17:51"
 }
]
}
```

- Step 2: Use the subnet ID and IP address obtained in [Step 1](#) to add a backend server.

POST https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members

```
{
 "member": {
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "protocol_port": 88,
 "name": "member-jy-tt-1",
 "address": "192.168.44.11"
 }
}
```

## Example Response

- Example response

```
{
 "member": {
 "name": "member-jy-tt-1",
 "weight": 1,
 "admin_state_up": true,
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "address": "192.168.44.11",
 }
}
```

```

"protocol_port": 88,
"operating_status": "ONLINE",
"id": "c0042496-e220-44f6-914b-e6ca33bab503"
}
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.4.2 Querying Backend Servers

### Function

This API is used to query backend servers in a specific backend server group. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### URI

GET /v2/{project\_id}/elb/pools/{pool\_id}/members

**Table 6-103** Parameter description

| 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

**Table 6-104** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String | Specifies the ID of the backend server from which pagination query starts, that is, the ID of the last backend server on the previous page. If this parameter is not specified, the first page will be queried.<br><br>This parameter must be used together with <b>limit</b> . |

| Parameter     | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------|-----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit         | No        | Integer | Specifies the number of backend servers on each page. If this parameter is not set, all backend servers are queried by default.                                                                                                                                                                                                                                                                                          |
| page_reverse  | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used with <b>limit</b> . |
| id            | No        | String  | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer.                                                                                                                                                                                                  |
| tenant_id     | No        | String  | Specifies the ID of the project where the backend server is used.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                 |
| name          | No        | String  | Specifies the backend server name.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                |
| address       | No        | String  | Specifies the private IP address of the backend server.<br><br>The value contains a maximum of 64 characters.                                                                                                                                                                                                                                                                                                            |
| protocol_port | No        | Integer | Specifies the port used by the backend server.                                                                                                                                                                                                                                                                                                                                                                           |
| subnet_id     | No        | String  | Specifies the ID of the subnet where the backend server works.                                                                                                                                                                                                                                                                                                                                                           |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                             |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the backend server.<br>The value can be <b>true</b> or <b>false</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |
| weight         | No        | Integer | Specifies the backend server weight.                                                                                                                                                                                                                                                                                                                    |

## Response

**Table 6-105** Parameter description

| Parameter | Type  | Description                                                                                       |
|-----------|-------|---------------------------------------------------------------------------------------------------|
| members   | Array | Lists backend servers in the backend server group. For details, see <a href="#">Table 6-106</a> . |

**Table 6-106** members parameter description

| Parameter | Type   | Description                                                                                                                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer. |
| tenant_id | String | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                    |
| name      | String | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                   |

| Parameter        | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| address          | String  | <p>Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b>.</p> <p>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.</p> <p>The value contains a maximum of 64 characters.</p>                                                                                                                                                                                                                                                                                                                                                                    |
| protocol_port    | Integer | <p>Specifies the port used by the backend server. The port number ranges from 1 to 65535.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| subnet_id        | String  | <p>Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.</p> <p>IPv6 subnets are not supported.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| admin_state_up   | Boolean | <p>Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b>.</p> <p>Currently, the value can only be <b>true</b>.</p> <p><b>NOTE</b><br/>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b>. Otherwise, the value is <b>false</b>.</p>                                                                                                                                                                                                                                                  |
| weight           | Integer | <p>Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b>.</p> <p>If the value is <b>0</b>, the backend server will not accept new requests. The default value is <b>1</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| operating_status | String  | <p>Specifies the health check result of the backend server. The value can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li> <li>• <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li> <li>• <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li> <li>• The value contains a maximum of 16 characters.</li> </ul> |

## Example Request

- Example request 1: Querying all backend servers  
GET https://{Endpoint}/v2/1a3e005cf9ce40308c900bcb08e5320c/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members
- Example request 2: Querying the backend cloud server whose IP address is 10.0.0.8 and port number is 80  
GET https://{Endpoint}/v2/1a3e005cf9ce40308c900bcb08e5320c/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members?address=10.0.0.8&protocol\_port=80

## Example Response

- Example response 1

```
{
 "members": [
 {
 "address": "10.0.0.8",
 "admin_state_up": true,
 "id": "9a7aff27-fd41-4ec1-ba4c-3eb92c629313",
 "protocol_port": 80,
 "subnet_id": "013d3059-87a4-45a5-91e9-d721068ae0b2",
 "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",
 "weight": 1,
 "operating_status": "ONLINE",
 "name": "member-name"
 }
]
}
```
- Example response 2

```
{
 "members": [
 {
 "address": "10.0.0.8",
 "admin_state_up": true,
 "id": "9a7aff27-fd41-4ec1-ba4c-3eb92c629313",
 "protocol_port": 80,
 "subnet_id": "013d3059-87a4-45a5-91e9-d721068ae0b2",
 "tenant_id": "1a3e005cf9ce40308c900bcb08e5320c",

 "weight": 1,
 "operating_status": "ONLINE",
 "name": "member-name"
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.4.3 Querying Details of a Backend Server

### Function

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

### URI

GET /v2/{project\_id}/elb/pools/{pool\_id}/members/{member\_id}

**Table 6-107** Parameter description

| 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><b>NOTE</b> <ul style="list-style-type: none"> <li>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.</li> <li>You can obtain this value by calling the API described in <a href="#">6.4.2 Querying Backend Servers</a>.</li> </ul> |

## Request

None

## Response

**Table 6-108** Parameter description

| Parameter | Type   | Description                                                                  |
|-----------|--------|------------------------------------------------------------------------------|
| member    | Object | Specifies the backend server. For details, see <a href="#">Table 6-109</a> . |

**Table 6-109 member** parameter description

| Parameter | Type   | Description                                                                                                                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer. |
| tenant_id | String | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                    |



| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name           | String  | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                  |
| address        | String  | Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b> .<br>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.<br>The value contains a maximum of 64 characters.                                                                                                                     |
| protocol_port  | Integer | Specifies the port used by the backend server. The port number ranges from 1 to 65535.                                                                                                                                                                                                                                                                                                                 |
| subnet_id      | String  | Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.<br>IPv6 subnets are not supported.                                                                                                                                                                                                                                      |
| admin_state_up | Boolean | Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b> .<br>Currently, the value can only be <b>true</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |
| weight         | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                     |

| Parameter        | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| operating_status | String | <p>Specifies the health check result of the backend server. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li><li>• <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li><li>• <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li><li>• The value contains a maximum of 16 characters.</li></ul> |

## Example Request

- Example request: Querying details of a backend server  
GET <https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/cf024846-7516-4e3a-b0fb-6590322c836f>

## Example Response

- Example response 1

```
{
 "member": {
 "name": "",
 "weight": 1,
 "admin_state_up": true,
 "subnet_id": "823d5866-6e30-45c2-9b1a-a1ebc3757fdb",
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "address": "192.172.3.100",
 "protocol_port": 8080,
 "operating_status": "ONLINE",
 "id": "e58f5bfa-0e46-4bc5-951c-8473d3e5f24a"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.4.4 Updating a Backend Server

### Function

This API is used to update a backend server. You can modify its name and weight. You can set a larger weight for backend servers that can receive more traffic.

## Constraints

If the provisioning status of the associated load balancer is not **ACTIVE**, the backend server cannot be updated.

## URI

PUT /v2/{project\_id}/elb/pools/{pool\_id}/members/{member\_id}

**Table 6-110** Parameter description

| 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><b>NOTE</b> <ul style="list-style-type: none"> <li>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.</li> <li>You can obtain this value by calling the API described in <a href="#">6.4.2 Querying Backend Servers</a>.</li> </ul> |

## Request

**Table 6-111** Parameter description

| Parameter | Mandatory | Type   | Description                                                                  |
|-----------|-----------|--------|------------------------------------------------------------------------------|
| member    | Yes       | Object | Specifies the backend server. For details, see <a href="#">Table 6-112</a> . |

**Table 6-112 member** parameter description

| Parameter | Mandatory | Type   | Description                                                                        |
|-----------|-----------|--------|------------------------------------------------------------------------------------|
| name      | No        | String | Specifies the backend server name. The value contains a maximum of 255 characters. |

| 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>Currently, the value can only be <b>true</b> .<br><b>NOTE</b><br>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b> . Otherwise, the value is <b>false</b> . |
| weight         | No        | Integer | Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b> .<br>If the value is <b>0</b> , the backend server will not accept new requests. The default value is <b>1</b> .                                                                                                                                                                                                     |

## Response

**Table 6-113** Parameter description

| Parameter | Type   | Description                                                                  |
|-----------|--------|------------------------------------------------------------------------------|
| member    | Object | Specifies the backend server. For details, see <a href="#">Table 6-114</a> . |

**Table 6-114** member parameter description

| Parameter | Type   | Description                                                                                                                                                                                                             |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the backend server ID.<br><b>NOTE</b><br>The value of this parameter is not the ID of the server but an ID automatically generated for the backend server that has already associated with the load balancer. |
| tenant_id | String | Specifies the ID of the project where the backend server is used.<br>The value contains a maximum of 255 characters.                                                                                                    |
| name      | String | Specifies the backend server name.<br>The value contains a maximum of 255 characters.                                                                                                                                   |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| address        | String  | <p>Specifies the private IP address of the backend server. This IP address must be in the subnet specified by <b>subnet_id</b>.</p> <p>This parameter can be set only to the IP address of the primary NIC, for example, 192.168.3.11.</p> <p>The value contains a maximum of 64 characters.</p>                                                                                                                   |
| protocol_port  | Integer | <p>Specifies the port used by the backend server. The port number ranges from 1 to 65535.</p>                                                                                                                                                                                                                                                                                                                      |
| subnet_id      | String  | <p>Specifies the ID of the subnet where the backend server works. The private IP address of the backend server is in this subnet.</p> <p>IPv6 subnets are not supported.</p>                                                                                                                                                                                                                                       |
| admin_state_up | Boolean | <p>Specifies the administrative status of the backend server. The value can be <b>true</b> or <b>false</b>.</p> <p>Currently, the value can only be <b>true</b>.</p> <p><b>NOTE</b><br/>This parameter can be used during creation and update and its actual value depends on whether the backend server exists. If the backend server exists, the value is <b>true</b>. Otherwise, the value is <b>false</b>.</p> |
| weight         | Integer | <p>Specifies the backend server weight. The value ranges from <b>0</b> to <b>100</b>.</p> <p>If the value is <b>0</b>, the backend server will not accept new requests. The default value is <b>1</b>.</p>                                                                                                                                                                                                         |

| Parameter        | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| operating_status | String | <p>Specifies the health check result of the backend server. The value can be one of the following:</p> <ul style="list-style-type: none"><li>• <b>ONLINE</b>: The health check is successfully conducted and the backend server is running properly.</li><li>• <b>OFFLINE</b>: The health check is abnormal and the backend server is running improperly. The load balancer stops distributing traffic to this server until it recovers.</li><li>• <b>NO_MONITOR</b>: No health check is conducted. No health checks are configured, or the value of <b>admin_state_up</b> is <b>false</b>.</li><li>• The value contains a maximum of 16 characters.</li></ul> |

## Example Request

- Example request: Updating the name and weight of a backend server  
PUT <https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/c0042496-e220-44f6-914b-e6ca33bab503>

```
{
 "member": {
 "name": "member create test",
 "weight": 10
 }
}
```

## Example Response

- Example response

```
{
 "member": {
 "name": "member-jy-tt-1",
 "weight": 1,
 "admin_state_up": true,
 "subnet_id": "33d8b01a-bbe6-41f4-bc45-78a1d284d503",
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "address": "192.168.44.11",
 "protocol_port": 88,
 "operating_status": "ONLINE",
 "id": "c0042496-e220-44f6-914b-e6ca33bab503"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.4.5 Removing a Backend Server

### Function

This API is used to remove a backend server by its ID.

### Constraints

After you remove a backend server, new connections to this server will not be established. However, long connections that have been established will be maintained.

### URI

DELETE /v2/{project\_id}/elb/pools/{pool\_id}/members/{member\_id}

**Table 6-115** Parameter description

| 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><b>NOTE</b> <ul style="list-style-type: none"> <li>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.</li> <li>You can obtain this value by calling the API described in <a href="#">6.4.2 Querying Backend Servers</a>.</li> </ul> |

### Request

None

### Response

None

### Example Request

- Example request: Removing a backend server  
DELETE https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/pools/5a9a3e9e-d1aa-448e-af37-a70171f2a332/members/cf024846-7516-4e3a-b0fb-6590322c836f

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6.5 Health Check

## 6.5.1 Configuring a Health Check

### Function

This API is used to configure a health check for a backend server group to check the status of backend servers. If the health check result is **OFFLINE**, backend servers are considered unhealthy. You need to check the server configuration.

### Constraints

- The security groups must have rules that allow access by 100.125.0.0/16.
- If UDP is used for the health check, the protocol of the backend server group must be UDP.

### URI

POST /v2/{project\_id}/elb/healthmonitors

**Table 6-116** Parameter description

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

### Request

**Table 6-117** Parameter description

| Parameter     | Mandatory | Type   | Description                                                                |
|---------------|-----------|--------|----------------------------------------------------------------------------|
| healthmonitor | Yes       | Object | Specifies the health check. For details, see <a href="#">Table 6-118</a> . |



**Table 6-118 healthmonitor** parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | <p>Specifies the ID of the project where the health check is performed.</p> <p>The value must be the same as the value of <b>project_id</b> in the token.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                        |
| name           | No        | String  | <p>Specifies the health check name.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                              |
| delay          | Yes       | Integer | <p>Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b>.</p>                                                                                                                                                                                                                                 |
| max_retries    | Yes       | Integer | <p>Specifies the maximum number of retries. The value ranges from <b>1</b> to <b>10</b>.</p>                                                                                                                                                                                                                                                                |
| pool_id        | Yes       | String  | <p>Specifies the ID of the backend server group.</p> <p>Only one health check can be configured for each backend server group.</p>                                                                                                                                                                                                                          |
| admin_state_up | No        | Boolean | <p>Specifies the administrative status of the health check.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>true</b>.</p> <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout        | Yes       | Integer | <p>Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b>.</p> <p><b>NOTE</b><br/>You are advised to set the value less than that of parameter <b>delay</b>.</p>                                                                                                                                    |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type         | Yes       | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                                                                                                                                                                                                            |
| monitor_port | No        | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                                                                       |
| domain_name  | No        | String  | Specifies the domain name of HTTP requests during the health check.<br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.<br>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example, www.test.com.<br>The value contains a maximum of 100 characters. |
| url_path     | No        | String  | Specifies the HTTP request path for the health check. The default value is /.<br>The value starts with a slash (/).<br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>An example value is <b>/test</b> .<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                     |

| Parameter      | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | No        | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <p>A single value, such as <b>200</b></p> <p>A list of values, such as <b>200,202</b></p> <p>A value range, such as <b>200-204</b></p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 64 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |
| http_method    | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                       |

## Response

**Table 6-119** Parameter description

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 6-120</a> . |

**Table 6-120** healthmonitor parameter description

| Parameter | Type   | Description                    |
|-----------|--------|--------------------------------|
| id        | String | Specifies the health check ID. |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                        |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | String  | Specifies the ID of the project where the health check is performed.                                                                                                                                                                                                                                                                               |
| name           | String  | Specifies the health check name.                                                                                                                                                                                                                                                                                                                   |
| delay          | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                              |
| max_retries    | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| pools          | Array   | Lists the IDs of backend server groups associated with the health check. For details, see <a href="#">Table 6-121</a> .                                                                                                                                                                                                                            |
| admin_state_up | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                     |
| type           | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                        |
| monitor_port   | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                   |

| Parameter      | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <ul style="list-style-type: none"> <li>A single value, such as <b>200</b></li> <li>A list of values, such as <b>200,202</b></li> <li>A value range, such as <b>200-204</b></li> </ul> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>Currently, this parameter is not supported and is fixed at <b>200</b>.</p>                                                     |
| domain_name    | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example: www.test.com.</p> |
| url_path       | String | <p>Specifies the HTTP request path for the health check. The default value is <b>/</b>.</p> <p>The value starts with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                               |
| http_method    | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                               |

**Table 6-121** pools parameter description

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

## Example Request

- Example request: Configuring a health check

POST <https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/healthmonitors>

```
{
 "healthmonitor": {
 "admin_state_up": true,
 "pool_id": "bb44bffb-05d9-412c-9d9c-b189d9e14193",
 "domain_name": "www.test.com",
 "delay": 10,
 "max_retries": 10,
 "timeout": 10,
 "type": "HTTP"
 }
}
```

## Example Response

- Example response 1

```
{
 "healthmonitor": {
 "name": "",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "domain_name": "www.test.com",
 "delay": 10,
 "expected_codes": "200",
 "max_retries": 10,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "2dca3867-98c5-4cde-8f2c-b89ae6bd7e36",
 "monitor_port": 112
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.5.2 Querying Health Checks

### Function

This API is used to query all the health checks. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

## URI

GET /v2/{project\_id}/elb/healthmonitors

**Table 6-122** Parameter description

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

## Request

**Table 6-123** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the health check from which pagination query starts, that is, the ID of the last health check on the previous page.<br>This parameter must be used with <b>limit</b> .                                                                                                                                                                                                                           |
| limit        | No        | Integer | Specifies the number of health checks on each page. If this parameter is not set, all health checks are queried by default.                                                                                                                                                                                                                                                                                          |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used with <b>limit</b> . |
| id           | No        | String  | Specifies the health check ID.                                                                                                                                                                                                                                                                                                                                                                                       |
| tenant_id    | No        | String  | Specifies the ID of the project where the health check is performed.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                              |
| name         | No        | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                  |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| delay          | No        | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                                                                          |
| max_retries    | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                                                |
| admin_state_up | No        | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul>                                             |
| timeout        | No        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                 |
| type           | No        | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                                                                    |
| monitor_port   | No        | Integer | Specifies the port used for the health check.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                          |
| expected_codes | No        | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>The value contains a maximum of 64 characters.<br><b>NOTE</b><br>This parameter is reserved. |



| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain_name | No        | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example: www.test.com.</p> <p>The value contains a maximum of 100 characters.</p> |
| url_path    | No        | String | <p>Specifies the HTTP request path for the health check. The default value is /.</p> <p>The value starts with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                      |
| http_method | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 16 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                                |

## Response

**Table 6-124** Parameter description

| Parameter      | Type  | Description                                                             |
|----------------|-------|-------------------------------------------------------------------------|
| healthmonitors | Array | Lists the health checks. For details, see <a href="#">Table 6-125</a> . |

**Table 6-125** healthmonitor parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                        |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the health check ID.                                                                                                                                                                                                                                                                                                                     |
| tenant_id      | String  | Specifies the ID of the project where the health check is performed.                                                                                                                                                                                                                                                                               |
| name           | String  | Specifies the health check name.                                                                                                                                                                                                                                                                                                                   |
| delay          | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                              |
| max_retries    | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                    |
| pools          | Array   | Lists the IDs of backend server groups associated with the health check. For details, see <a href="#">Table 6-121</a> .                                                                                                                                                                                                                            |
| admin_state_up | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                     |
| type           | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                        |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| monitor_port   | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                    |
| expected_codes | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>Currently, this parameter is not supported and is fixed at <b>200</b> .                                                                                                           |
| domain_name    | String  | Specifies the domain name of HTTP requests during the health check.<br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.<br>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example: www.test.com. |
| url_path       | String  | Specifies the HTTP request path for the health check. The default value is <b>/</b> .<br>The value starts with a slash (/).<br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>An example value is <b>/test</b> .                                                                                                                                                                                                                             |
| http_method    | String  | Specifies the HTTP request method. The default value is <b>GET</b> .<br>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b> .<br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br><b>NOTE</b><br>This parameter is reserved.                                                                                                                                                                              |

**Table 6-126** pools parameter description

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

### Example Request

- Example request 1: Querying all health checks  
GET https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/healthmonitors
- Example request 2: Querying HTTP health checks  
GET https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/healthmonitors?type=HTTP

### Example Response

- Example response 1
 

```
{
 "healthmonitors": [
 {
 "monitor_port": null,
 "name": "",
 "admin_state_up": true,
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "domain_name": null,
 "delay": 5,
 "expected_codes": "200",
 "max_retries": 3,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "caef8316-6b65-4676-8293-cf41fb63cc2a"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "1b587819-d619-49c1-9101-fe72d8b361ef"
 }
]
}
```

- Example response 2
 

```
{
 "healthmonitors": [
 {
 "monitor_port": null,
 "name": "",
 "admin_state_up": true,
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",

 "domain_name": null,
 "delay": 5,
 "expected_codes": "200",
 "max_retries": 3,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "caef8316-6b65-4676-8293-cf41fb63cc2a"
 }
],
 }
],
}
```

```

 "url_path": "/",
 "type": "HTTP",
 "id": "1b587819-d619-49c1-9101-fe72d8b361ef"
 }
]
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.5.3 Querying Health Check Details

### Function

This API is used to query details about a health check.

### URI

GET /v2/{project\_id}/elb/healthmonitors/{healthmonitor\_id}

**Table 6-127** Parameter description

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

### Request

None

### Response

**Table 6-128** Parameter description

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 6-129</a> . |

**Table 6-129** healthmonitor parameter description

| Parameter | Type   | Description                    |
|-----------|--------|--------------------------------|
| id        | String | Specifies the health check ID. |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                 |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | String  | Specifies the ID of the project where the health check is performed.                                                                                                                                                                                                                                                                                        |
| name           | String  | Specifies the health check name.                                                                                                                                                                                                                                                                                                                            |
| delay          | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                                       |
| max_retries    | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                             |
| pools          | Array   | Lists the IDs of backend server groups associated with the health check. For details, see <a href="#">Table 6-121</a> .                                                                                                                                                                                                                                     |
| admin_state_up | Boolean | <p>Specifies the administrative status of the health check.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>true</b>.</p> <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul> |
| timeout        | Integer | <p>Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b>.</p> <p><b>NOTE</b><br/>You are advised to set the value less than that of parameter <b>delay</b>.</p>                                                                                                                                    |
| type           | String  | <p>Specifies the health check protocol.</p> <p>The value can be <b>TCP</b>, <b>UDP_CONNECT</b>, or <b>HTTP</b>.</p>                                                                                                                                                                                                                                         |
| monitor_port   | Integer | <p>Specifies the health check port. The port number ranges from 1 to 65535.</p> <p>The value is left blank by default, indicating that the port of the backend server is used as the health check port.</p>                                                                                                                                                 |

| Parameter      | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| expected_codes | String | <p>Specifies the expected HTTP status code. The following options are available:</p> <ul style="list-style-type: none"> <li>A single value, such as <b>200</b></li> <li>A list of values, such as <b>200,202</b></li> <li>A value range, such as <b>200-204</b></li> </ul> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>Currently, this parameter is not supported and is fixed at <b>200</b>.</p>                                                     |
| domain_name    | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example: www.test.com.</p> |
| url_path       | String | <p>Specifies the HTTP request path for the health check. The default value is <b>/</b>.</p> <p>The value starts with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <b>/test</b>.</p>                                                                                                                                                                                                                               |
| http_method    | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET, HEAD, POST, PUT, DELETE, TRACE, OPTIONS, CONNECT, and PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                                                                               |

**Table 6-130** pools parameter description

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

## Example Request

- Example request: Querying details of a health check  
GET https://{endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/healthmonitors/  
b7633ade-24dc-4d72-8475-06aa22be5412

## Example Response

- Example response 1

```
{
 "healthmonitor": {
 "name": "",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "domain_name": null,
 "delay": 10,
 "expected_codes": "200",
 "max_retries": 10,
 "http_method": "GET",
 "timeout": 10,
 "pools": [
 {
 "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "61c24cba-19bb-45c1-a013-7565e5f98872",
 "monitor_port": 112
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.5.4 Updating a Health Check

### Function

This API is used to update a health check.

### Constraints

If **provisioning\_status** of the load balancer for which the health check is configured is not **ACTIVE**, the health check cannot be updated.

### URI

PUT /v2/{project\_id}/elb/healthmonitors/{healthmonitor\_id}



**Table 6-131** Parameter description

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

## Request

**Table 6-132** Parameter description

| Parameter     | Mandatory | Type   | Description                                                                |
|---------------|-----------|--------|----------------------------------------------------------------------------|
| healthmonitor | Yes       | Object | Specifies the health check. For details, see <a href="#">Table 6-133</a> . |

**Table 6-133** healthmonitor parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                    |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name           | No        | String  | Specifies the health check name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                            |
| delay          | No        | Integer | Specifies the maximum time between health checks in the unit of second.<br>The value ranges from <b>1</b> to <b>50</b> .                                                                                                                                                                                                                       |
| max_retries    | No        | Integer | Specifies the number of consecutive health checks when the health check result of a backend server changes from <b>OFFLINE</b> to <b>ONLINE</b> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                |
| admin_state_up | No        | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li><b>true</b>: indicates that the health check function is enabled.</li> <li><b>false</b>: indicates that the health check function is disabled.</li> </ul> |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| timeout        | No        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                                                                                                                                                                                            |
| type           | No        | String  | Specifies the health check protocol. The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| monitor_port   | No        | Integer | Specifies the health check port. The port number ranges from 1 to 65535. The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                                                                                                                                                                                             |
| expected_codes | No        | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .                                                                                                                                                                                                                                            |
| domain_name    | No        | String  | Specifies the domain name of HTTP requests during the health check.<br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.<br>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter,<br>for example: www.test.com.<br>The value contains a maximum of 100 characters. |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| url_path    | No        | String | <p>Specifies the HTTP request path for the health check. The default value is <code>/</code>.</p> <p>The value starts with a slash (<code>/</code>).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <code>/test</code>.</p> <p>The value contains a maximum of 255 characters.</p>                                                                               |
| http_method | No        | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET</b>, <b>HEAD</b>, <b>POST</b>, <b>PUT</b>, <b>DELETE</b>, <b>TRACE</b>, <b>OPTIONS</b>, <b>CONNECT</b>, and <b>PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The value contains a maximum of 16 characters.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p> |

## Response

**Table 6-134** Parameter description

| Parameter     | Type   | Description                                                                |
|---------------|--------|----------------------------------------------------------------------------|
| healthmonitor | Object | Specifies the health check. For details, see <a href="#">Table 6-135</a> . |

**Table 6-135** healthmonitor parameter description

| Parameter | Type    | Description                                                                                                           |
|-----------|---------|-----------------------------------------------------------------------------------------------------------------------|
| id        | String  | Specifies the health check ID.                                                                                        |
| tenant_id | String  | Specifies the ID of the project where the health check is performed.                                                  |
| name      | String  | Specifies the health check name.                                                                                      |
| delay     | Integer | Specifies the maximum time between health checks in the unit of second. The value ranges from <b>1</b> to <b>50</b> . |

| 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> . The value ranges from <b>1</b> to <b>10</b> .                                                                                                                                                                           |
| pools          | Array   | Lists the IDs of backend server groups associated with the health check. For details, see <a href="#">Table 6-121</a> .                                                                                                                                                                                                                                                   |
| admin_state_up | Boolean | Specifies the administrative status of the health check.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>true</b> . <ul style="list-style-type: none"> <li>• <b>true</b>: indicates that the health check function is enabled.</li> <li>• <b>false</b>: indicates that the health check function is disabled.</li> </ul>                        |
| timeout        | Integer | Specifies the health check timeout duration in the unit of second. The value ranges from <b>1</b> to <b>50</b> .<br><b>NOTE</b><br>You are advised to set the value less than that of parameter <b>delay</b> .                                                                                                                                                            |
| type           | String  | Specifies the health check protocol.<br>The value can be <b>TCP</b> , <b>UDP_CONNECT</b> , or <b>HTTP</b> .                                                                                                                                                                                                                                                               |
| monitor_port   | Integer | Specifies the health check port. The port number ranges from 1 to 65535.<br>The value is left blank by default, indicating that the port of the backend server is used as the health check port.                                                                                                                                                                          |
| expected_codes | String  | Specifies the expected HTTP status code. The following options are available:<br>A single value, such as <b>200</b><br>A list of values, such as <b>200,202</b><br>A value range, such as <b>200-204</b><br>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b> .<br>Currently, this parameter is not supported and is fixed at <b>200</b> . |

| Parameter   | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain_name | String | <p>Specifies the domain name of HTTP requests during the health check.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>The parameter value is left blank by default, indicating that the private IP address of the load balancer is used as the destination address of HTTP requests.</p> <p>The parameter value can contain only digits, letters, hyphens (-), and periods (.) and must start with a digit or letter, for example: www.test.com.</p> |
| url_path    | String | <p>Specifies the HTTP request path for the health check. The default value is <code>/</code>.</p> <p>The value starts with a slash (/).</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p>An example value is <code>/test</code>.</p>                                                                                                                                                                                                                   |
| http_method | String | <p>Specifies the HTTP request method. The default value is <b>GET</b>.</p> <p>The value can be <b>GET</b>, <b>HEAD</b>, <b>POST</b>, <b>PUT</b>, <b>DELETE</b>, <b>TRACE</b>, <b>OPTIONS</b>, <b>CONNECT</b>, and <b>PATCH</b>.</p> <p>This parameter is valid only when the value of <b>type</b> is set to <b>HTTP</b>.</p> <p><b>NOTE</b><br/>This parameter is reserved.</p>                                                                                                                       |

**Table 6-136** pools parameter description

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

## Example Request

- Example request: Updating a health check

```
PUT https://{endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/healthmonitors/b7633ade-24dc-4d72-8475-06aa22be5412
```

```
{
 "healthmonitor": {
 "delay": 15,
```

```

 "name": "health-xx",
 "timeout": 12
 }
}

```

## Example Response

- Example response

```

{
 "healthmonitor": {
 "name": "health-xx",
 "admin_state_up": true,
 "tenant_id": "145483a5107745e9b3d80f956713e6a3",
 "domain_name": null,
 "delay": 15,
 "expected_codes": "200",
 "max_retries": 10,
 "http_method": "GET",
 "timeout": 12,
 "pools": [
 {
 "id": "bb44bffb-05d9-412c-9d9c-b189d9e14193"
 }
],
 "url_path": "/",
 "type": "HTTP",
 "id": "2dca3867-98c5-4cde-8f2c-b89ae6bd7e36",
 "monitor_port": 112
 }
}

```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.5.5 Deleting a Health Check

### Function

This API is used to delete a health check.

### Constraints

If **provisioning\_status** of the load balancer for which the health check is configured is not **ACTIVE**, the health check cannot be deleted.

### URI

DELETE /v2/{project\_id}/elb/healthmonitors/{healthmonitor\_id}

**Table 6-137** Parameter description

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

## Request

None

## Response

None

## Example Request

- Example request: Deleting a health check  
DELETE https://{Endpoint}/v2/145483a5107745e9b3d80f956713e6a3/elb/healthmonitors/  
b7633ade-24dc-4d72-8475-06aa22be5412

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6.6 Forwarding Policy

## 6.6.1 Adding a Forwarding Policy

### Function

This API is used to add a forwarding policy. The listener and forwarding policy determine how traffic is forwarded to backend servers.

- By matching the URL or domain name specified in the forwarding policy when **action** is set to **REDIRECT\_TO\_POOL**, the load balancer distributes the traffic to backend servers in a specific backend server group.
- When **action** is set to **REDIRECT\_TO\_LISTENER**, the HTTP listener is redirected to an HTTPS listener, and requests are routed by the HTTPS listener.

### Constraints

Currently, only redirects from an HTTP listener to an HTTPS listener are supported. When **action** is set to **REDIRECT\_TO\_LISTENER**, the listener specified by **listener\_id** can only be an HTTP listener, and the listener specified by **redirect\_listener\_id** can only be an HTTPS listener.

The load balancer of the HTTPS listener to which traffic is redirected must be the same as that of the HTTP listener.

### URI

POST /v2/{project\_id}/elb/l7policies

**Table 6-138** Parameter description

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

## Request

**Table 6-139** Parameter description

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 6-140</a> . |

**Table 6-140** l7policy parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                   |
|----------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | Specifies the ID of the project where the forwarding policy is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters. |
| name           | No        | String  | Specifies the forwarding policy name.<br><br>The value contains a maximum of 255 characters.                                                                                                                  |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding policy.<br><br>The value can be <b>true</b> or <b>false</b> .<br><br>This parameter is reserved. The default value is <b>true</b> .                     |
| description    | No        | String  | Provides supplementary information about the forwarding policy.<br><br>The value contains a maximum of 255 characters.                                                                                        |



| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| listener_id      | Yes       | String | <p>Specifies the ID of the listener to which the forwarding policy is added.</p> <ul style="list-style-type: none"> <li>When <b>action</b> is set to <b>REDIRECT_TO_POOL</b>, forwarding policies can be added to a listener with <b>protocol</b> set to <b>HTTP</b> or <b>TERMINATED_HTTPS</b>.</li> <li>When <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>, forwarding policies can be added to a listener with <b>protocol</b> set to <b>HTTP</b>.</li> </ul>                                                                                                                            |
| action           | Yes       | String | <p>Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li><b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li><b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul>                            |
| redirect_pool_id | No        | String | <p>Specifies the ID of the backend server group to which traffic is forwarded. The default value is <b>null</b>.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>.</p> <p>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</p> <p>The backend server group must meet the following requirements:</p> <ul style="list-style-type: none"> <li>Cannot be the default backend server group of the listener.</li> <li>Cannot be the backend server group used by forwarding policies of other listeners.</li> </ul> |

| Parameter            | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_listener_id | No        | String  | Specifies the ID of the listener to which the traffic is redirected. The default value is <b>null</b> .<br>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> .<br>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> . The listener must meet the following requirements: <ul style="list-style-type: none"> <li>• Can only be an HTTPS listener.</li> <li>• Can only be a listener of the same load balancer.</li> </ul> |
| redirect_url         | No        | String  | Specifies the URL to which traffic is redirected. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                            |
| position             | No        | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                |
| rules                | No        | Array   | Lists the forwarding rules of the forwarding policy. For details, see <a href="#">Table 6-141</a> .<br>The list contains a maximum of two rules, and the <b>type</b> parameter of each rule must be unique.                                                                                                                                                                                                                                                                                       |

**Table 6-141** rules parameter description

| Parameter      | Type    | Mandatory | Description                                                                                                                                                                     |
|----------------|---------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | Boolean | No        | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> . |

| Parameter    | Type         | Mandatory | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------|--------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type         | String       | Yes       | <p>Specifies the match type of a forwarding rule.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> <p>The match type of forwarding rules in a forwarding policy must be unique.</p>                                                                                                                                                                                          |
| compare_type | String       | Yes       | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |
| invert       | Boolean      | No        | <p>Specifies whether reverse match is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                             |
| key          | String (255) | No        | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Parameter | Type         | Mandatory | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|--------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | String (128) | Yes       | <p>Specifies the value of the match content. The value cannot contain spaces.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!: \/()[]{}</code></li> </ul> |

## Response

**Table 6-142** Parameter description

| Parameter | Type   | Description                                                                     |
|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Object | Specifies the forwarding policy. For details, see <a href="#">Table 6-143</a> . |

**Table 6-143** l7policy parameter description

| Parameter      | Type    | Description                                                                                                                                                                                    |
|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding policy ID.                                                                                                                                                            |
| tenant_id      | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                           |
| name           | String  | Specifies the forwarding policy name.                                                                                                                                                          |
| admin_state_up | Boolean | <p>Specifies the administrative status of the forwarding policy.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p> |

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| rules                | Array   | Lists the forwarding rules of the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                              |
| provisioning_status  | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                   |

**Table 6-144** rules parameter description

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

## Example Request

- Example request 1: Adding a forwarding policy

POST <https://{Endpoint}/v2/573d73c9f90e48d0bddfa0eb202b25c2/elb/l7policies>

```
{
 "l7policy": {
 "name": "niubiao_yaqing_api-2",
 "listener_id": "3e24a3ca-11e5-4aa3-abd4-61ba0a8a18f1",
 "action": "REDIRECT_TO_POOL",
 "redirect_pool_id": "6460f13a-76de-43c7-b776-4fefc06a676e",
 "rules": [
 {
 "type": "PATH",
 "compare_type": "EQUAL_TO",
 "value": "/test"
 },
 {
 "type": "HOST_NAME",
 "compare_type": "EQUAL_TO",
 "value": "www.test.com"
 }
]
 }
}
```

## Example Response

- Example response 1

```
{
 "l7policy": {
 "redirect_pool_id": "6460f13a-76de-43c7-b776-4fefc06a676e",
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "742600d9-2a14-4808-af69-336883dbb590"
 },
 {
 "id": "3251ed77-0d52-412b-9310-733636bb3fbf"
 }
],
 "tenant_id": "573d73c9f90e48d0bddfa0eb202b25c2",
 "listener_id": "3e24a3ca-11e5-4aa3-abd4-61ba0a8a18f1",
 "redirect_url": null,
 "redirect_listener_id": null,
 "action": "REDIRECT_TO_POOL",
 "position": 100,
 "provisioning_status": "ACTIVE",

 "id": "65d6e115-f179-4bcd-9bbb-1484e5f8ee81",
 "name": "niubiao_yaqing_api-2"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.6.2 Querying Forwarding Policies

### Function

This API is used to query all the forwarding policies. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

## URI

GET /v2/{project\_id}/elb/l7policies

**Table 6-145** Parameter description

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

## Request

**Table 6-146** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the forwarding policy from which pagination query starts, that is, the ID of the last forwarding policy on the previous page.<br><br>This parameter must be used together with <b>limit</b> .                                                                                                                                                                                                                 |
| limit        | No        | Integer | Specifies the number of forwarding policies on each page. If this parameter is not set, all forwarding policies are queried by default.                                                                                                                                                                                                                                                                                           |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br><br>This parameter must be used together with <b>limit</b> . |
| id           | No        | String  | Specifies the forwarding policy ID.                                                                                                                                                                                                                                                                                                                                                                                               |
| tenant_id    | No        | String  | Specifies the ID of the project where the forwarding policy is used.<br><br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                       |

| Parameter            | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name                 | No        | String  | Specifies the forwarding policy name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| admin_state_up       | No        | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                               |
| description          | No        | String  | Provides supplementary information about the forwarding policy.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| listener_id          | No        | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| action               | No        | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | No        | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_listener_id | No        | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| redirect_url         | No        | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                             |



| Parameter             | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                    |
|-----------------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| position              | No        | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> . This parameter is reserved.                                                                                                                                                                                                |
| provisioning_status   | No        | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> . The default value is <b>ACTIVE</b> . This parameter is reserved. The value contains a maximum of 16 characters.                                                                                         |
| enterprise_project_id | No        | String  | Specifies the enterprise project ID. The value is character string <b>0</b> or a UUID with hyphens (-). Value <b>0</b> indicates the default enterprise project. If an IAM user is used to query the forwarding policies, the value of <b>enterprise_project_id</b> must be set to <b>all_granted_eps</b> or a specific enterprise project ID. |

## Response

**Table 6-147** Response parameters

| Parameter  | Type  | Description                                                                                              |
|------------|-------|----------------------------------------------------------------------------------------------------------|
| l7policies | Array | Lists the forwarding policies. For details, see <a href="#">Table 4 l7policy parameter description</a> . |

**Table 6-148** l7policy parameter description

| Parameter | Type   | Description                                                          |
|-----------|--------|----------------------------------------------------------------------|
| id        | String | Specifies the forwarding policy ID.                                  |
| tenant_id | String | Specifies the ID of the project where the forwarding policy is used. |
| name      | String | Specifies the forwarding policy name.                                |

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up       | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                               |
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| rules                | Array   | Lists the forwarding rules of the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                              |
| provisioning_status  | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                   |

**Table 6-149** rules parameter description

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

## Example Request

- Example request 1: Querying all forwarding policies  
GET https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies
- Example request 2: Querying forwarding policies through which requests are forwarded to the backend server group  
GET https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies?  
action=REDIRECT\_TO\_POOL

## Example Response

- Example response 1  

```
{
 "l7policies": [
 {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
]
 },
 {
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 2,
 "provisioning_status": "ACTIVE",
 "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
 "name": ""
 },
 {
 "redirect_pool_id": "59eebd7b-c68f-4f8a-aa7f-e062e84c0690",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "f4499f48-de3d-4efe-926d-926aa4d6aaf5"
 }
]
 },
 {
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "e1310063-00de-4867-ab55-ccac4d9db364",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 1,
 "provisioning_status": "ACTIVE",
 "id": "6cfd9d89-1d7e-4d84-ae1f-a8c5ff126f72",
 "name": ""
 }
]
}
```

- Example response 2

```
{
 "l7policies": [
 {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
],
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 2,
 "provisioning_status": "ACTIVE",
 "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
 "name": ""
 },
 {
 "redirect_pool_id": "59eebd7b-c68f-4f8a-aa7f-e062e84c0690",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "f4499f48-de3d-4efe-926d-926aa4d6aaf5"
 }
],
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "e1310063-00de-4867-ab55-ccac4d9db364",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 1,
 "provisioning_status": "ACTIVE",
 "id": "6cfd9d89-1d7e-4d84-ae1f-a8c5ff126f72",
 "name": ""
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.6.3 Querying Details of a Forwarding Policy

### Function

This API is used to query details about a forwarding policy.

### URI

GET /v2/{project\_id}/elb/l7policies/{l7policy\_id}

**Table 6-150** Parameter description

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

## Request

None

## Response

**Table 6-151** Parameter description

| Parameter | Type   | Description                                                                     |
|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Object | Specifies the forwarding policy. For details, see <a href="#">Table 6-152</a> . |

**Table 6-152** l7policy parameter description

| Parameter      | Type    | Description                                                                                                                                                                       |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding policy ID.                                                                                                                                               |
| tenant_id      | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                              |
| name           | String  | Specifies the forwarding policy name.                                                                                                                                             |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding policy.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> . |
| description    | String  | Provides supplementary information about the forwarding policy.                                                                                                                   |
| listener_id    | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                         |

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| rules                | Array   | Lists the forwarding rules of the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                              |
| provisioning_status  | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                   |

**Table 6-153** rules parameter description

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

### Example Request

- Example request: Querying details of a forwarding policy

GET https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586

## Example Response

- Example response 1

```
{
 "l7policy": {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
]
 },
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
 "redirect_url": null,
 "provisioning_status": "ACTIVE",
 "action": "REDIRECT_TO_POOL",
 "position": 1,
 "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
 "name": "l7policy-garry-1"
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.6.4 Updating a Forwarding Policy

### Function

This API is used to update a forwarding policy.

### URI

PUT /v2/{project\_id}/elb/l7policies/{l7policy\_id}

**Table 6-154** Parameter description

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

## Request

**Table 6-155** Parameter description

| Parameter | Mandatory | Type   | Description                                                                     |
|-----------|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Yes       | Object | Specifies the forwarding policy. For details, see <a href="#">Table 6-156</a> . |

**Table 6-156** l7policy parameter description

| Parameter        | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------|-----------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name             | No        | String | Specifies the forwarding policy name. The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| description      | No        | String | Provides supplementary information about the forwarding policy. The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| redirect_pool_id | No        | String | Specifies the ID of the backend server group to which traffic is forwarded. The default value is <b>null</b> .<br>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_POOL</b> .<br>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b> .<br>The backend server group must meet the following requirements: <ul style="list-style-type: none"> <li>• Cannot be the default backend server group of the listener.</li> <li>• Cannot be the backend server group used by forwarding policies of other listeners.</li> </ul> |



| Parameter            | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| redirect_listener_id | No        | String  | <p>Specifies the ID of the listener to which the traffic is redirected. The default value is <b>null</b>.</p> <p>This parameter is mandatory when <b>action</b> is set to <b>REDIRECT_TO_LISTENER</b>.</p> <p>This parameter cannot be specified when <b>action</b> is set to <b>REDIRECT_TO_POOL</b>. The listener must meet the following requirements:</p> <ul style="list-style-type: none"> <li>• Can only be an HTTPS listener.</li> <li>• Can only be a listener of the same load balancer.</li> </ul> |
| admin_state_up       | No        | Boolean | <p>Specifies the administrative status of the forwarding policy.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p>                                                                                                                                                                                                                                                                                                                |

## Response

**Table 6-157** Parameter description

| Parameter | Type   | Description                                                                     |
|-----------|--------|---------------------------------------------------------------------------------|
| l7policy  | Object | Specifies the forwarding policy. For details, see <a href="#">Table 6-158</a> . |

**Table 6-158** l7policy parameter description

| Parameter      | Type    | Description                                                                                                                                                                                    |
|----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding policy ID.                                                                                                                                                            |
| tenant_id      | String  | Specifies the ID of the project where the forwarding policy is used.                                                                                                                           |
| name           | String  | Specifies the forwarding policy name.                                                                                                                                                          |
| admin_state_up | Boolean | <p>Specifies the administrative status of the forwarding policy.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p> |

| Parameter            | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description          | String  | Provides supplementary information about the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| listener_id          | String  | Specifies the ID of the listener to which the forwarding policy is added.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| action               | String  | Specifies whether requests are forwarded to another backend server group or redirected to another HTTPS listener.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>REDIRECT_TO_POOL</b>: Requests are forwarded to the backend server group specified by <b>redirect_pool_id</b>.</li> <li>• <b>REDIRECT_TO_LISTENER</b>: Requests are redirected from the HTTP listener specified by <b>listener_id</b> to the HTTPS listener specified by <b>redirect_listener_id</b>.</li> </ul> |
| redirect_pool_id     | String  | Specifies the ID of the backend server group to which traffic is forwarded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| redirect_listener_id | String  | Specifies the ID of the listener to which the traffic is redirected.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| redirect_url         | String  | Specifies the URL to which traffic is redirected.<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| rules                | Array   | Lists the forwarding rules of the forwarding policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| position             | Integer | Specifies the forwarding priority. The value ranges from <b>1</b> to <b>100</b> . The default value is <b>100</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                              |
| provisioning_status  | String  | Specifies the provisioning status of the forwarding policy. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                   |

**Table 6-159** rules parameter description

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

## Example Request

- Example request: Updating a forwarding policy  
PUT <https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586>

```
{
 "l7policy": {
 "name": "test"
 }
}
```

## Example Response

- Example response

```
{
 "l7policy": {
 "redirect_pool_id": "431a03eb-81bb-408e-ae37-7ce19023692b",
 "redirect_listener_id": null,
 "description": "",
 "admin_state_up": true,
 "rules": [
 {
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
],
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "listener_id": "26058b64-6185-4e06-874e-4bd68b7633d0",
 "redirect_url": null,
 "action": "REDIRECT_TO_POOL",
 "position": 2,
 "provisioning_status": "ACTIVE",
 "id": "5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586",
 "name": "test"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.6.5 Deleting a Forwarding Policy

### Function

This API is used to delete a forwarding policy.

### URI

DELETE /v2/{project\_id}/elb/l7policies/{l7policy\_id}

**Table 6-160** Parameter description

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

## Request

None

## Response

None

## Example Request

- Example request: Deleting a forwarding policy  
DELETE <https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586>

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6.7 Forwarding Rule

## 6.7.1 Adding a Forwarding Rule

### Function

This API is used to add a forwarding rule. After you add a forwarding rule, the load balancer matches the domain name and path in the request and distributes the traffic to the backend server group specified by **redirect\_pool\_id** of the associated forwarding policy.

### Constraints

The match type of forwarding rules in a forwarding policy must be unique.

## URI

POST /v2/{project\_id}/elb/l7policies/{l7policy\_id}/rules

**Table 6-161** Parameter description

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

## Request

**Table 6-162** Parameter description

| Parameter | Mandatory | Type   | Description                                                                   |
|-----------|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Yes       | Object | Specifies the forwarding rule. For details, see <a href="#">Table 6-163</a> . |

**Table 6-163** rule parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                         |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id      | No        | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value must be the same as the value of <b>project_id</b> in the token.<br>The value contains a maximum of 255 characters. |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                     |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type         | Yes       | String  | <p>Specifies the match type of a forwarding rule.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> <p>The match type of forwarding rules in a forwarding policy must be unique.</p>                                                                                                                                                                                          |
| compare_type | Yes       | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |
| invert       | No        | Boolean | <p>Specifies whether reverse match is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                             |
| key          | No        | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | Yes       | String | <p>Specifies the value of the match content. The value cannot contain spaces.</p> <p>The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!:  \()[]{}</code></li> </ul> |

## Response

**Table 6-164** Parameter description

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 6-165</a> . |

**Table 6-165** rule parameter description

| Parameter | Type   | Description                                                                                                                      |
|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the forwarding rule ID.                                                                                                |
| tenant_id | String | <p>Specifies the ID of the project where the forwarding rule is used.</p> <p>The value contains a maximum of 255 characters.</p> |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                             |
| type           | String  | Specifies the match type of a forwarding rule.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul>                                                                                                                                                                                                                                                                      |
| compare_type   | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |
| invert         | Boolean | Specifies whether reverse match is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                          |
| key            | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                |



| Parameter           | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value               | String | <p>Specifies the value of the match content. The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?,=!: \/() []{}</code></li> </ul> |
| provisioning_status | String | <p>Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>. The default value is <b>ACTIVE</b>. This parameter is reserved. The value contains a maximum of 16 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## Example Request

- Example request: Adding a forwarding rule

POST `https://{endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules`

```
{
 "rule": {
 "compare_type": "EQUAL_TO",
 "type": "PATH",
 "value": "/bbb.html"
 }
}
```

## Example Response

- Example response

```
{
 "rule": {
 "compare_type": "EQUAL_TO",
 "admin_state_up": true,
 "provisioning_status": "ACTIVE",
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "/bbb.html",
 "key": null,
 "type": "PATH",
 "id": "c6f457b8-bf6f-45d7-be5c-a3226945b7b1"
 }
}
```

```
}
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.7.2 Querying Forwarding Rules

### Function

This API is used to query forwarding rules. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

### URI

GET /v2/{project\_id}/elb/l7policies/{l7policy\_id}/rules

**Table 6-166** Parameter description

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

### Request

**Table 6-167** Parameter description

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                      |
|-----------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String | Specifies the ID of the forwarding rule from which pagination query starts, that is, the ID of the last forwarding rule on the previous page.<br>This parameter must be used with <b>limit</b> . |

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| limit          | No        | Integer | Specifies the number of forwarding rules on each page. If this parameter is not set, all forwarding rules are queried by default.                                                                                                                                                                                                                                                                                    |
| page_reverse   | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link.<br>This parameter must be used with <b>limit</b> . |
| id             | No        | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                                                                                                                                    |
| tenant_id      | No        | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                      |
| type           | No        | String  | Specifies the match type of a forwarding rule.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> The match type of forwarding rules in a forwarding policy must be unique.                                     |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type | No        | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                             |
| invert       | No        | Boolean | <p>Specifies whether reverse match is supported.</p> <p>The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| key          | No        | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| value        | No        | String  | <p>Specifies the value of the match content.</p> <p>The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!: \\() [] {}</code></li> </ul> |

| Parameter           | Mandatory | Type   | Description                                                                                                                                                                                                                                          |
|---------------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | No        | String | Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> . The default value is <b>ACTIVE</b> . This parameter is reserved. The value contains a maximum of 16 characters. |

## Response

**Table 6-168** Parameter description

| Parameter | Type  | Description                                                                |
|-----------|-------|----------------------------------------------------------------------------|
| rules     | Array | Lists the forwarding rules. For details, see <a href="#">Table 6-169</a> . |

**Table 6-169** rules parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                         |
|----------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                   |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used. The value contains a maximum of 255 characters.                                                                                                                                                                                  |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule. The value can be <b>true</b> or <b>false</b> . This parameter is reserved. The default value is <b>true</b> .                                                                                                                           |
| type           | String  | Specifies the match type of a forwarding rule. The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> |

| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type        | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                     |
| invert              | Boolean | <p>Specifies whether reverse match is supported. The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| key                 | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| value               | String  | <p>Specifies the value of the match content. The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!: \/() []{}</code></li> </ul> |
| provisioning_status | String  | <p>Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</p> <p>The default value is <b>ACTIVE</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 16 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Example Request

- Example request: Querying all forwarding rules of a specific forwarding policy  
GET https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules

## Example Response

- Example response

```
{
 "rules": [
 {
 "compare_type": "EQUAL_TO",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "www.test.com",
 "key": null,
 "type": "HOST_NAME",
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 },
 {
 "compare_type": "EQUAL_TO",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "/aaa.html",
 "key": null,
 "type": "PATH",
 "id": "f02b3bca-69d2-4335-a3fa-a8054e996213"
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.7.3 Querying Details of a Forwarding Rule

### Function

This API is used to query details about a forwarding rule.

### URI

GET /v2/{project\_id}/elb/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 6-170** Parameter description

| Parameter  | Mandator<br>y | Type       | Description               |
|------------|---------------|------------|---------------------------|
| project_id | Yes           | Strin<br>g | Specifies the project ID. |

| Parameter   | Mandatory | Type   | Description                         |
|-------------|-----------|--------|-------------------------------------|
| l7policy_id | Yes       | String | Specifies the forwarding policy ID. |
| l7rule_id   | Yes       | String | Specifies the forwarding rule ID.   |

## Request

None

## Response

**Table 6-171** Parameter description

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 6-172</a> . |

**Table 6-172** rule parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                                            |
|----------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                                                                                                                                      |
| tenant_id      | String  | Specifies the ID of the project where the forwarding rule is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                  |
| admin_state_up | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                        |
| type           | String  | Specifies the match type of a forwarding rule.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul> |



| Parameter           | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type        | String  | <p>Specifies the match mode. The options are as follows:</p> <p>When <b>type</b> is set to <b>HOST_NAME</b>, the value of this parameter can only be the following:</p> <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> <p>When <b>type</b> is set to <b>PATH</b>, the value of this parameter can be one of the following:</p> <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                     |
| invert              | Boolean | <p>Specifies whether reverse match is supported. The value can be <b>true</b> or <b>false</b>. The default value is <b>false</b>.</p> <p>This parameter is reserved.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| key                 | String  | <p>Specifies the key of the match content. The default value is <b>null</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 255 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| value               | String  | <p>Specifies the value of the match content. The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!: \/() []{}</code></li> </ul> |
| provisioning_status | String  | <p>Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b>, <b>PENDING_CREATE</b>, or <b>ERROR</b>.</p> <p>The default value is <b>ACTIVE</b>.</p> <p>This parameter is reserved.</p> <p>The value contains a maximum of 16 characters.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Example Request

- Example request: Querying details of a forwarding rule  
GET https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3

## Example Response

- Example response 1  

```
{
 "rule": {
 "compare_type": "EQUAL_TO",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",

 "invert": false,
 "value": "/index.html",
 "key": null,
 "type": "PATH",
 "id": "67d8a8fa-b0dd-4bd4-a85b-671db19b2ef3"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.7.4 Updating a Forwarding Rule

### Function

This API is used to update a forwarding rule. You can change the mode that how traffic is distributed by updating the forwarding rule.

### URI

PUT /v2/{project\_id}/elb/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 6-173** Parameter description

| Parameter   | Mandator<br>y | 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

**Table 6-174** Parameter description

| Parameter | Mandatory | Type   | Description                                                                   |
|-----------|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Yes       | Object | Specifies the forwarding rule. For details, see <a href="#">Table 6-175</a> . |

**Table 6-175** rule parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| compare_type   | No        | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following:<br><ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following:<br><ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> |
| admin_state_up | No        | Boolean | Specifies the administrative status of the forwarding rule.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The default value is <b>true</b> .                                                                                                                                                                                                                                                                                                                                                                                                   |
| invert         | No        | Boolean | Specifies whether reverse match is supported.<br>The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                |
| key            | No        | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Parameter | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| value     | No        | String | <p>Specifies the value of the match content. The value cannot contain spaces.</p> <p>The value contains a maximum of 128 characters.</p> <ul style="list-style-type: none"> <li>When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~!;@^-%#&amp;\$.*+?,=!: \/() [] {}</code></li> </ul> |

## Response

**Table 6-176** Parameter description

| Parameter | Type   | Description                                                                   |
|-----------|--------|-------------------------------------------------------------------------------|
| rule      | Object | Specifies the forwarding rule. For details, see <a href="#">Table 6-177</a> . |

**Table 6-177** rule parameter description

| Parameter      | Type    | Description                                                                                                                                                                                  |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the forwarding rule ID.                                                                                                                                                            |
| tenant_id      | String  | <p>Specifies the ID of the project where the forwarding rule is used.</p> <p>The value contains a maximum of 255 characters.</p>                                                             |
| admin_state_up | Boolean | <p>Specifies the administrative status of the forwarding rule.</p> <p>The value can be <b>true</b> or <b>false</b>.</p> <p>This parameter is reserved. The default value is <b>true</b>.</p> |

| Parameter    | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| type         | String  | Specifies the match type of a forwarding rule. The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>HOST_NAME</b>: matches the domain name in the request.</li> <li>• <b>PATH</b>: matches the path in the request.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                        |
| compare_type | String  | Specifies the match mode. The options are as follows:<br>When <b>type</b> is set to <b>HOST_NAME</b> , the value of this parameter can only be the following: <ul style="list-style-type: none"> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul> When <b>type</b> is set to <b>PATH</b> , the value of this parameter can be one of the following: <ul style="list-style-type: none"> <li>• <b>REGEX</b>: indicates regular expression match.</li> <li>• <b>STARTS_WITH</b>: indicates prefix match.</li> <li>• <b>EQUAL_TO</b>: indicates exact match.</li> </ul>                                                                                                                                |
| invert       | Boolean | Specifies whether reverse match is supported. The value can be <b>true</b> or <b>false</b> . The default value is <b>false</b> .<br>This parameter is reserved.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| key          | String  | Specifies the key of the match content. The default value is <b>null</b> .<br>This parameter is reserved.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| value        | String  | Specifies the value of the match content. The value contains a maximum of 128 characters. <ul style="list-style-type: none"> <li>• When <b>type</b> is set to <b>HOST_NAME</b>, the value is a string of a maximum of 100 characters, contains only letters, digits, hyphens (-), and periods (.), and must start with a letter or digit.</li> <li>• When <b>type</b> is set to <b>PATH</b>, the value is a string of a maximum of 128 characters. When the value of <b>compare_type</b> is set to <b>STARTS_WITH</b> or <b>EQUAL_TO</b>, the string must start with a slash (/) and can contain only letters, digits, and special characters <code>_~';@^-%#&amp;\$.*+?;=!: \\\/() []{}</code></li> </ul> |

| Parameter           | Type   | Description                                                                                                                                                                                                                                                   |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| provisioning_status | String | Specifies the provisioning status of the forwarding rule. The value can be <b>ACTIVE</b> , <b>PENDING_CREATE</b> , or <b>ERROR</b> .<br>The default value is <b>ACTIVE</b> .<br>This parameter is reserved.<br>The value contains a maximum of 16 characters. |

## Example Request

- Example request: Updating a forwarding rule  
PUT https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/c6f457b8-bf6f-45d7-be5c-a3226945b7b1  

```
{
 "rule": {
 "compare_type": "STARTS_WITH",
 "value": "/ccc.html"
 }
}
```

## Example Response

- Example response  

```
{
 "rule": {
 "compare_type": "STARTS_WITH",
 "provisioning_status": "ACTIVE",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "invert": false,
 "value": "/ccc.html",
 "key": null,
 "type": "PATH",
 "id": "c6f457b8-bf6f-45d7-be5c-a3226945b7b1"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.7.5 Deleting a Forwarding Rule

### Function

This API is used to delete a forwarding rule.

### URI

DELETE /v2/{project\_id}/elb/l7policies/{l7policy\_id}/rules/{l7rule\_id}

**Table 6-178** Parameter description

| 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

None

## Response

None

## Example Request

- Example request: Deleting a forwarding rule  
DELETE `https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/l7policies/5ae0e1e7-5f0f-47a1-b39f-5d4c428a1586/rules/c6f457b8-bf6f-45d7-be5c-a3226945b7b1`

## Example Response

- Example response  
None

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 6.8 Whitelist

## 6.8.1 Adding a Whitelist

### Function

This API is used to add a whitelist to control access to a specific listener. After a whitelist is added, only IP addresses in the whitelist can access the listener.

### URI

POST `/v2/{project_id}/elb/whitelists`

**Table 6-179** Parameter description

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

## Request

**Table 6-180** Parameter description

| Parameter | Mandatory | Type   | Description                                                             |
|-----------|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Yes       | Object | Specifies the whitelist. For details, see <a href="#">Table 6-181</a> . |

**Table 6-181** whitelist parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                             |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id        | No        | String  | Specifies the ID of the project where the whitelist is used.<br><br>The value must be the same as the value of <b>project_id</b> in the token.<br><br>The value contains a maximum of 255 characters.                                                                                                   |
| listener_id      | Yes       | String  | Specifies the listener ID.<br><br>Only one whitelist can be created for a listener.                                                                                                                                                                                                                     |
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled.<br><br>The default value is <b>true</b> .                                                                                                                     |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist. Use commas (,) to separate multiple IP addresses.<br><br>You can specify an IP address, for example, 192.168.11.1.<br><br>You can also specify an IP address range, for example, 192.168.0.1/24.<br><br>The default value is an empty string, that is, "". |



## Response

**Table 6-182** Parameter description

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 6-183</a> . |

**Table 6-183** whitelist parameter description

| Parameter        | Type    | Description                                                                                                                         |
|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                         |
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                     |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                   |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true:</b> Access control is enabled.<br><b>false:</b> Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                        |

## Example Request

- Example request: Adding a whitelist  
POST `https://{Endpoint}/v2/eabfefa3fd1740a88a47ad98e132d238/elb/whitelists`

```
{
 "whitelist": {
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Example Response

- Example response
 

```
{
 "whitelist": {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 }
}
```

```
"tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
"enable_whitelist": true,
"whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
}
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.8.2 Querying Details of a Whitelist

### Function

This API is used to query details about a whitelist using its ID.

### URI

GET /v2/{project\_id}/elb/whitelists/{whitelist\_id}

**Table 6-184** Parameter description

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

### Request

None

### Response

**Table 6-185** Parameter description

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 6-186</a> . |

**Table 6-186** whitelist parameter description

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

| Parameter        | Type    | Description                                                                                                                           |
|------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                       |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                     |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true</b> : Access control is enabled.<br><b>false</b> : Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                          |

## Example Request

- Example request: Querying details of a whitelist  
GET https://{Endpoint}/v2/eabfefa3fd1740a88a47ad98e132d238/elb/whitelists/09e64049-2ab0-4763-a8c5-f4207875dc3e

## Example Response

- Example response

```
{
 "whitelist": {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.8.3 Querying a Whitelist

### Function

This API is used to query the whitelists. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

## URI

GET /v2/{project\_id}/elb/whitelists

**Table 6-187** Parameter description

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

## Request

**Table 6-188** Parameter description

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker       | No        | String  | Specifies the ID of the whitelist from which pagination query starts, that is, the ID of the last whitelist on the previous page. This parameter must be used with <b>limit</b> .                                                                                                                                                                                                                                 |
| limit        | No        | Integer | Specifies the number of whitelists on each page. If this parameter is not set, all whitelists are queried by default.                                                                                                                                                                                                                                                                                             |
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link. This parameter must be used with <b>limit</b> . |
| id           | No        | String  | Specifies the whitelist ID.                                                                                                                                                                                                                                                                                                                                                                                       |
| tenant_id    | No        | String  | Specifies the ID of the project where the whitelist is used. The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                      |
| listener_id  | No        | String  | Specifies the ID of the listener to which the whitelist is added.                                                                                                                                                                                                                                                                                                                                                 |

| Parameter        | Mandator y | Type    | Description                                                                                                                         |
|------------------|------------|---------|-------------------------------------------------------------------------------------------------------------------------------------|
| enable_whitelist | No         | Boolean | Specifies whether to enable access control.<br><b>true:</b> Access control is enabled.<br><b>false:</b> Access control is disabled. |
| whitelist        | No         | String  | Specifies the IP addresses in the whitelist.                                                                                        |

## Response

**Table 6-189** Parameter description

| Parameter  | Type  | Description                                                             |
|------------|-------|-------------------------------------------------------------------------|
| whitelists | Array | Specifies the whitelist. For details, see <a href="#">Table 6-190</a> . |

**Table 6-190** whitelists parameter description

| Parameter        | Type    | Description                                                                                                                         |
|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                         |
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                     |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                   |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true:</b> Access control is enabled.<br><b>false:</b> Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                        |

## Example Request

- Example request 1: Querying all whitelists  
GET <https://{Endpoint}/v2/eabfefa3fd1740a88a47ad98e132d238/elb/whitelists>
- Example request 2: Querying the whitelists added to listener eabfefa3fd1740a88a47ad98e132d230

```
GET https://{Endpoint}/v2/eabfefa3fd1740a88a47ad98e132d238/elb/whitelists?
listener_id=eabfefa3fd1740a88a47ad98e132d230
```

## Example Response

- Example response 1

```
{
 "whitelists": [
 {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 },
 {
 "id": "eabfefa3fd1740a88a47ad98e132d326",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d327",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d436",
 "enable_whitelist": true,
 "whitelist": "192.168.12.1,192.168.1.1/24,192.168.203.18/8,100.164.5.1/24"
 }
]
}
```

- Example response 2

```
{
 "whitelists": [
 {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d230",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d239",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 },
 {
 "id": "eabfefa3fd1740a88a47ad98e132d326",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d327",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d439",
 "enable_whitelist": true,
 "whitelist": "192.168.12.1,192.168.1.1/24,192.168.203.18/8,100.164.5.1/24"
 }
]
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.8.4 Updating a Whitelist

### Function

This API is used to update a whitelist. You can enable or disable the whitelist function or update IP addresses in the whitelist.

### URI

```
PUT /v2/{project_id}/elb/whitelists/{whitelist_id}
```

**Table 6-191** Parameter description

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

## Request

**Table 6-192** Parameter description

| Parameter | Mandatory | Type   | Description                                                             |
|-----------|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Yes       | Object | Specifies the whitelist. For details, see <a href="#">Table 6-193</a> . |

**Table 6-193** whitelist parameter description

| Parameter        | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                 |
|------------------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enable_whitelist | No        | Boolean | Specifies whether to enable access control.<br><b>true:</b> Access control is enabled.<br><b>false:</b> Access control is disabled.<br>The default value is <b>true</b> .                                                                                                                   |
| whitelist        | No        | String  | Specifies the IP addresses in the whitelist. Use commas (,) to separate multiple IP addresses.<br>You can specify an IP address, for example, 192.168.11.1.<br>You can also specify an IP address range, for example, 192.168.0.1/24.<br>The default value is an empty string, that is, "". |

## Response

**Table 6-194** Parameter description

| Parameter | Type   | Description                                                             |
|-----------|--------|-------------------------------------------------------------------------|
| whitelist | Object | Specifies the whitelist. For details, see <a href="#">Table 6-195</a> . |

**Table 6-195** whitelist parameter description

| Parameter        | Type    | Description                                                                                                                         |
|------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------|
| id               | String  | Specifies the whitelist ID.                                                                                                         |
| tenant_id        | String  | Specifies the ID of the project where the whitelist is used.<br>The value contains a maximum of 255 characters.                     |
| listener_id      | String  | Specifies the ID of the listener to which the whitelist is added.                                                                   |
| enable_whitelist | Boolean | Specifies whether to enable access control.<br><b>true:</b> Access control is enabled.<br><b>false:</b> Access control is disabled. |
| whitelist        | String  | Specifies the IP addresses in the whitelist.                                                                                        |

## Example Request

- Example request: Updating a whitelist**  
 PUT https://{Endpoint}/v2/eabfefa3fd1740a88a47ad98e132d238/elb/whitelists/dcaf46f1-037c-4f63-a31f-e0c4c18032c7
 

```
{
 "whitelist": {
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```

## Example Response

- Example response**

```
{
 "whitelist": {
 "id": "eabfefa3fd1740a88a47ad98e132d238",
 "listener_id": "eabfefa3fd1740a88a47ad98e132d238",
 "tenant_id": "eabfefa3fd1740a88a47ad98e132d238",
 "enable_whitelist": true,
 "whitelist": "192.168.11.1,192.168.0.1/24,192.168.201.18/8,100.164.0.1/24"
 }
}
```



## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.8.5 Deleting a Whitelist

### Function

This API is used to delete a specific whitelist.

### URI

DELETE /v2/{project\_id}/elb/whitelists/{whitelist\_id}

**Table 6-196** Parameter description

| Parameter    | Mandator<br>y | Type       | Description                 |
|--------------|---------------|------------|-----------------------------|
| project_id   | Yes           | Strin<br>g | Specifies the project ID.   |
| whitelist_id | Yes           | Strin<br>g | Specifies the whitelist ID. |

### Request

None

### Response

None

### Example Request

- Example request: Deleting a whitelist  
DELETE https://{Endpoint}/v2/eabfefa3fd1740a88a47ad98e132d238/elb/whitelists/  
35cb8516-1173-4035-8dae-0dae3453f37f

### Example Response

- Example response  
None

### Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.9 Certificate

## 6.9.1 Creating a Certificate

### Function

This API is used to create a certificate. After a certificate is bound to a listener, the load balancer authenticates the client using this certificate, and backend servers can establish secure and reliable HTTP connections with the client.

### URI

POST /v2/{project\_id}/elb/certificates

**Table 6-197** Parameter description

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

### Request

**Table 6-198** Parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                     |
|----------------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The value can only be <b>true</b> .                                                                                                                                    |
| name           | No        | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                              |
| description    | No        | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                    |
| type           | No        | String  | Specifies the certificate type. The default value is <b>server</b> .<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"><li>• <b>server</b>: indicates the server certificate.</li><li>• <b>client</b>: indicates the CA certificate.</li></ul> |

| Parameter             | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------|-----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain                | No        | String | <p>Specifies the domain name associated with the server certificate. The default value is <b>null</b>.</p> <p>The value contains a maximum of 100 characters.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• A common domain name contains 0 to 100 characters and consists of several strings separated by periods (.). Each string can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li> <li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*).</li> </ul> <p><b>NOTE</b><br/>This parameter is valid only when <b>type</b> is set to <b>server</b>.</p> |
| private_key           | No        | String | <p>Specifies the private key of the server certificate.</p> <p>The private key is in PEM format.</p> <p><b>NOTE</b><br/>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b>.<br/>This parameter is invalid only when <b>type</b> is set to <b>client</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| certificate           | Yes       | String | <p>Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required.</p> <p>Both types of certificates are in PEM format.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| enterprise_project_id | No        | String | <p>Specifies the enterprise project ID. When creating a load balancer, you can assign an enterprise project to the load balancer.</p> <p>The value is character string <b>0</b> or a UUID with hyphens (-). Value <b>0</b> indicates the default enterprise project.</p> <p>The default value is <b>0</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## Response

**Table 6-199** Parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                                              |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                          |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .                                                                                                                                                                  |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                         |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                               |
| type           | String  | Specifies the certificate type.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"><li>• <b>server</b>: indicates the server certificate.</li><li>• <b>client</b>: indicates the CA certificate.</li></ul> |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                                       |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                                         |
| certificate    | String  | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format.                      |
| expire_time    | String  | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                  |

| Parameter   | Type   | Description                                                                                                   |
|-------------|--------|---------------------------------------------------------------------------------------------------------------|
| create_time | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |

### Example Request

- Example request: Creating a certificate

```
POST https://{Endpoint}/v2/930600df07ac4f66964004041bd3deaf/elb/certificates
{
 "name": "https_certificate",
 "description": "description for certificate",
 "type": "server",
 "domain": "www.elb.com",
 "private_key":
 "-----BEGIN PRIVATE KEY-----
\nMIIEvglBADANBqkqkig9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcj8KCnX1nfzTvl2ksXITQ2o9BkpStnPe
\nbt4s32ziJRMlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AzzqXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
\nZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
\nEo04Z9H/AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/HL
\nfvCArftGgMaYWPNSNCJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
\nnciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvJTXcoU6fm7gYdHAD6jk9lc9M
\nEGpfYI6AdHlwFzCt/RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale
\nkrgruPtFv1vWklg+bUfHgGaiAEYTpAUN9t2DVIijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCZo8MKeV2jf2drLxRRwRl33SksQbzAQ/qRldT7GP3sCGqvkwY2FPdFyF8kx
\nGcCeZPcleZYQAM41pjtsaM8tVbLWVR8UtGBUqoPSPH7JNF3Tm/JH/fbwjpp7dt
\nJ7n8EzkRUNE6alMHOFEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\nniWgTWHXPZxUQaYhpjXo6+LMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fbuXh6lm8K8lQRfBpJff56p9pMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELG9CbKsdzKM71GyElmix/T7FnSHIWLho1qVo6AQyduNWnAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fflERmazdOTwjYz0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
\n/735uP20KKqhNehZpC2dJei7OiiRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nnfi7FPMDvG8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4CtFk9o
\nnjHjWB7pQUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9lluk
\nnfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----",
 "certificate":
 "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
\nb21wYW55IENBMB4XDTE4MDcwMjEzMTU0N1oXDTE4MTExNzEzMTU0N1owFDESMBAG
\nA1UEAwWbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEa
\nn0FQGzi3ucTX+DNud1p/b4XVM6i3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
\nnU0NqPQZKURz3rQeLN9mYiUTJZPutYlFDDbB8CtIgv+eyU9yYjsWx/Bm5kWNPh9
\n7B9YU9ppb2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhwJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\nny09cxLKAftgoZWQD2FAZJf97k1kYNwqITz3CPILZUUn7ywnkOOtLMI28IEv0WY
\nYd7CMJQks1NPJBKNOGfr/wIDAQABozowODAhBgNVHREEGjAYggpkb21hW4uY29t
\nnhwQKuUvJhwR/AAABMBMGA1UdJQQMMAoGCCsGAQUFBwMBMAOGCCsGSIb3DQEBcWUA
\nA4IBAQA8lMQxaTey7EjXtRLSVIEAMftAQPG6jijNQuvIBQYUDauDT4W2XUz5wAn
```

```
\njiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
\nezmcCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYLzp1HMnl6hkjPk4PCZ
\nwK nha0dlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml
\n+vbmunok3A2luc14rnsrcbkGYqGikySN6B2cRLBDK4Y3wChiW6NVVtVqcx5/mZ
\niYsGDVN+9QBd0eYUHce+77s96i3l
\n-----END CERTIFICATE-----"
}
```

## Example Response

- Example response

```
{
 "domain": "www.elb.com",
 "expire_time": "2045-11-17 13:25:47",
 "update_time": "2017-12-04 06:49:13",
 "create_time": "2017-12-04 06:49:13",
 "id": "3d8a7a02f87a40ed931b719edfe75451",
 "admin_state_up": true,
 "private_key": "-----BEGIN PRIVATE KEY-----
\nMIIIEvglBADANBgkqhkiG9w0BAQEFAASCBAKgwggSkAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcj8KcN1nfzTvl2ksXITQ2o9BkpStnPe
\nbtB4s32ZiJRMlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gLv6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AzcXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMslHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
\nZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
\nEo04Z9H/AgMBAEECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/HL
\nfvCArftGgMaYWPNSNCJRMXB7tPwpQu19esjz4Z/cR2Je4FTLPrffGUsHFgZjv5OQB
\nZVe4a5Hj1OcgjYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
\nnciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
\nEGpfYI6AdHlwFzct/RNAXhP82lg2gUJSgAu66FFDjMwQXKbafKdP3zq4Up8a7Ale
\nkrgruPtFv1vWklg+bUfhgGaiAEYTpAUN9t2DVIiijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCz08MKeV2jf2drlxRRwRl33SksQbzAQ/qrLd77GP3sCGqvkxWY2FPdFYf8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSPH7JNF3Tm/JH/fbwjpp7dt
\nj7n8EzkRUNE6alMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\nniWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fubXh6lm8K8lQRfBpJff56p9pMwaBpDNDrpfHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELGI9CbKsdzKM71GyElmix/T7FnSHIWLho1qVo6AQyduNWnAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fFlERmazdOTwjYz0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
\n/735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nnfl7PMDvGlbioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4Ctfk9o
\njHjWB7pQUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9lIuk
\nnfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9L5jtYf4ege
\n-----END PRIVATE KEY-----",
 "tenant_id": "930600df07ac4f66964004041bd3deaf",
 "type": "server",
 "certificate": "-----BEGIN CERTIFICATE-----
\nMIIIC4TCCAcmgAwIBAgI CERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
\nb21wYW55IENBMBA4XDTE4MDcwMjEzU0N1oXDTQ1MTEwNzEzZjU0N1owFDESMBAG
\nA1UEAwJbG9jYXVxob3N0MIIlBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCjKCAQEA
\n0FQGzi3ucTX+DNud1p/b4XVM6l3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
\nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh9
\n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsx+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\nny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPLZUUn7yw3nkOOtLMI28IEv0Wy
\nYd7CMJQkS1NPJBKNogFR/wIDAQABozowODAhBgNVHREEGjAYggpbk21haW4uY29t
\nnhwQKuUvJhwr/AAABMBMGA1UdJQMMAoGCCsGAQUFBwMBMA0GCsGCSiB3DQEBcWUA
\nA4IBAQ8IMQJxaTey7EjXtRLSVIEAMftAQPG6jjNQUViBQYUDauDT4W2XUz5wAn
\nnjiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
\nnezmcCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYLzp1HMnl6hkjPk4PCZ
\nnwK nha0dlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZGml
\n+n+vbmunok3A2luc14rnsrcbkGYqGikySN6B2cRLBDK4Y3wChiW6NVVtVqcx5/mZ
\nniYsGDVN+9QBd0eYUHce+77s96i3l
\n-----END CERTIFICATE-----",
 "name": "https_certificate",
 "description": "description for certificate"
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.9.2 Querying Certificates

### Function

This API is used to query all the certificates. Filter query and pagination query are supported. Unless otherwise specified, exact match is applied.

### Constraints

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

### URI

GET /v2/{project\_id}/elb/certificates

**Table 6-200** Parameter description

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

### Request

**Table 6-201** Parameter description

| Parameter | Mandatory | Type    | Description                                                                                                                                                                           |
|-----------|-----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| marker    | No        | String  | Specifies the ID of the certificate from which pagination query starts, that is, the ID of the last certificate on the previous page. This parameter must be used with <b>limit</b> . |
| limit     | No        | Integer | Specifies the number of certificates on each page. If this parameter is not set, all certificates are queried by default.                                                             |

| Parameter    | Mandatory | Type    | Description                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| page_reverse | No        | Boolean | Specifies the page direction. The value can be <b>true</b> or <b>false</b> , and the default value is <b>false</b> . The last page in the list requested with <b>page_reverse</b> set to <b>false</b> will not contain the "next" link, and the last page in the list requested with <b>page_reverse</b> set to <b>true</b> will not contain the "previous" link. This parameter must be used with <b>limit</b> . |
| id           | No        | String  | Specifies the certificate ID.                                                                                                                                                                                                                                                                                                                                                                                     |
| name         | No        | String  | Specifies the certificate name. The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                   |
| description  | No        | String  | Provides supplementary information about the certificate. The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                         |
| type         | No        | String  | Specifies the certificate type. The default value is <b>server</b> . The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul>                                                                                                   |



| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| domain      | No        | String | <p>Specifies the domain name associated with the server certificate. The default value is <b>null</b>.</p> <p>The value contains a maximum of 100 characters.</p> <p>The value range varies depending on the protocol of the backend server group:</p> <ul style="list-style-type: none"> <li>• A common domain name contains 0 to 100 characters and consists of several strings separated by periods (.). Each string can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li> <li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*). This parameter is valid only when <b>type</b> is set to <b>server</b>.</li> </ul> |
| private_key | No        | String | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| certificate | No        | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| create_time | No        | String | <p>Specifies the time when the certificate was created.</p> <p>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| update_time | No        | String | <p>Specifies the time when the certificate was updated.</p> <p>The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Response

**Table 6-202** Response parameters

| Parameter    | Type    | Description                                                            |
|--------------|---------|------------------------------------------------------------------------|
| certificates | Array   | Lists the certificates. For details, see <a href="#">Table 6-203</a> . |
| instance_num | Integer | Specifies the number of certificates.                                  |

**Table 6-203** certificates parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                   |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                                                 |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                             |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .                                                                                                                                                                     |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                            |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                  |
| type           | String  | Specifies the certificate type.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>● <b>server</b>: indicates the server certificate.</li> <li>● <b>client</b>: indicates the CA certificate.</li> </ul> |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                                          |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                                            |

| Parameter   | Type   | Description                                                                                                                                                                                                                                           |
|-------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| certificate | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format. |
| expire_time | String | Specifies the time when the certificate expires. The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                                |
| create_time | String | Specifies the time when the certificate was created. The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                            |
| update_time | String | Specifies the time when the certificate was updated. The UTC time is in <i>YYYY-MM-DD HH:MM:SS</i> format.                                                                                                                                            |

### Example Request

- Request example 1: Querying all certificates  
GET <https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/certificates>
- Example 2: Querying a certificate whose ID is ef4d341365754a959556576501791b19 or ed40e8ea9957488ea82de025e35b74c0  
GET <https://{Endpoint}/v2/601240b9c5c94059b63d484c92cfe308/elb/certificates?id=ef4d341365754a959556576501791b19&id=ed40e8ea9957488ea82de025e35b74c0>

### Example Response

- Example response 1
 

```
{
 "certificates": [
 {
 "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgICEREWdQYJKoZIhvcNAQELBQAwFzEVMBMGAGA1UEAxMMTXID
\nb21wYW55IENBMB4XDTE4MDcwMjEzU0N1oXDTQ1MTEwNzEzU0N1owFDESMBAG
\nA1UEAwJbG9jYWxob3N0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
+DNud1p/
b4XVM6I3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5\u00NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDb
B8CtlgV+eyU9yYJslWx/
Bm5kWNPh9\n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
\ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOtLMI28IEv0WY
\nYd7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
\nhwQKuUvJhwR/AAABMBMGA1UdJQQMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBwUA
\nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQP6GjjNQuvIBQYUDauDT4W2XUz5wAn
\njiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
\nnezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNjvPRLYLzP1HMnl6hkjPk4PCZ
\nnwKha0dlScati9Cct3UzXSNJOSLaKdHErH08lqd+1BchScxCfk0xNITn1HZZGml\n
+vbmunok3A2luc14rnsrckGYqxGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----",
 }
]
}
```

```

 "create_time": "2017-02-25 09:35:27",
 "expire_time": "2045-11-17 13:25:47",
 "description": "description for certificate",
 "domain": "www.elb.com",
 "id": "23ef9aad4ecb463580476d324a6c71af",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "name": "https_certificate",
 "private_key":
"-----BEGIN PRIVATE KEY-----
\nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBCgwwgSkAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcJ8KCNX1nfzTvl2ksXITQ2o9BkpStnPe\ntB4s32ZiJRMlk
+61iUUMNnsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gH6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AzcXt
\nCOFYn6RTH5SRug4hKNN7sT1eYMsIHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl\nZAPYUBkl/
0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k\nEo04Z9H/
AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/HL
\nfvCArftGgMaYWPNSNCJRMXB7tPwpQu19esjz4Z/cR2J4fTLPrffGUSHFgZjv5OQB
\nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhKHNKkr
\nnciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9c9M
\nEGpfYI6AdHlwFzCT/RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale\nkrguPtfV1vWklg
+bUfhgGaiAEYTpAUN9t2DVIijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCz08MKeV2jf2drLxRRwRl33SksQbzAQ/qrLd7GP3sCGqvkxWY2FPdFyf8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSph7JNF3Tm/JH/fbwjP7dt
\nJ7n8EzkRUNE6alMHOFEeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
\nniWgTWHXPZxUQaYhpiXo6+IMI6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXX0fbuXh6lm8K8lQRfBpJff56p9pMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jr4eB
\n1VlVqHELGI9CbKsdzKM71GyElmix/T7FnJSHIWLho1qVo6AQyduNWNhAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fLERmazedOTWjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak\n/
735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha\nnfi7FPMDvGl8ioYbvlHFHf
+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAoGBAJkD4wHW54PwD4Ctfk9o
\nnjHjWB7pQUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDJkxfciXKcsYr9lIuk
\nfaoXgjKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUlGKMWXzuEd\n3fy
+1rCUwzOp9LSjtYf4ege\n-----END PRIVATE KEY-----",
 "type": "server",
 "update_time": "2017-02-25 09:35:27"
 }
],
"instance_num": 1
}

```

- Example response 2

```

{
 "certificates": [
 {
 "description": "Push by SSL Certificate Manager",
 "domain": null,
 "id": "ed40e8ea9957488ea82de025e35b74c0",
 "name": "certForSonar9",
 "certificate": "-----BEGIN CERTIFICATE-----
MIIFizCCBHOGAwIBAgIQBlQycV3bWsVsCttw5rgRjANBgkqhkiG9w0BAQsFADBu
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGRlbnVlc3R5b3R5b3R5b3R5b3R5b3R5b3
d3cuZGlnaWNlcnQuY29tMS0wKwYDVQQDEyRfYmNyeXB0aW9uIEV2ZXJ5d2hlcmUg
RFYgVExTENBIC0gRzEwHhcNMjgwNzEwMjAwMDAwMDAwMjgwNzEwMjAwMDAwMDAw
MRIwEAYDVQQDEwlpY2UxMjUxMjUxMjUxMjUxMjUxMjUxMjUxMjUxMjUxMjUxMjUx
AoIBAQCTDlQMoaAvylnR6X1dihhNwbdGesbMW6NZX7ffpj9XrB3Kcqlxz14VmH9
PntvrpLJNeolgLqDZZc4zKbUkmaqY1dvGDs41coKzdtc9Iq23GVK48wfsnk5r50
afyU52R1JlSHDOhiDhHOSyhrOzc2GreLrByWKFUAue6rTnyMbZqASpTrTAqsURZ
wcmJ6R3A6JwokOgxXBSu41ufPQIFkMgxygKxEBLzJlJrQcXQHyoXbsTyoIb6jwp
w4H6vcRIEcFags98APWRoEKjy7eOP3UUm05F+OkOvXhrLxEqIPm/rlwE0PmVlmm9
DgBafYb3xT/Mt2VRSfCjQHglcsdAgMBAAGggj9MIICeTAFBgNVHSMEGDAWgBRV
dE+yck/1YLpQ0dfmUVyaAYca1zAdBgNVHQ4EFgQUEFavzYXBNbIHbchbaKcUKad+
qCEwIwYDVRR0BBwGoJaWNIMTizLnRrgg13d3cuaWNIMTizLnRrMA4GA1UdDwEB
/wQEAWiFoDAdBgNVHSUEFjAUBgggrBgEFBQcDAQYIKwYBBQUHAWIwTAYDVROgBEUw
QzA3BglghkgBhv1sAQIwKjAoBggrBgEFBQcCARYcaHR0cHM6Ly93d3cuZGlnaWNl
cnQuY29tL0NQUzAlBgZngwBAGewYEGCCsGAQUFBwEBBHUwczAlBggrBgEFBQcw
AYYZaHR0cDovL29jc3AyLmRwZ2ljZXJ0LmNvbTBKbGgrBgEFBQcwoAoY+aHR0cDov
L2NhY2VydmuZGlnaWNlcnQuY29tL0VUy3J5cHRpb25FdmVyeXdoZXJIRFZUTFND

```

```
QS1HMS5jcnQwCQYDVR0TBAlwADCCAQQGCisGAQQB1nkCBAIEgfUEgfIA8AB2AKS5
CZC0GFgUh7sTosxncAo8NZgE+RvfuON3zQ7IDdwQAAABZiONLcIAAAQDAEcrRQlh
AJX6gCXNggPdfOfDdtZPzYr64TTrR/+b9QKKhyJ2EjBAiAWgu3BG2QK9tWQXpUN
IFadC0nvqmDovabg5nmRMan2mQB2Ald1v+dZfPiMQ5lFvNu/1aNR1Y2/0q1YMG0
6v9eolMPAAABZiONLQEAQAQDAEcrRQlhAJVRe/7n88dD6KdhNrd4LdFjGARQNmta
Y/K2dFDOXPSfAiBOLrWW8unHOL25RWHJU7Ost3XkNhQYtrLDJrno/9kZzANBgkq
hkiG9w0BAQsFAAOCAQEaeqtX9cHmj4OnNAk0IGmF3nKS/u/UgGsY4EJfXWQY2bTZ
PCkqXQOA6HEX59vJ+UilTojrNDi0WskRm/8SKBHTmRwzWx3ile8KiR6FFqHPuT
VXHZcTfAfo47c7axqon8vumMIEv1PxVImivQ446K7z3kGm34dhMYs4Gz2gTl8IKt
90OegejuhbAs5Wlvp1BK8HIYIb5+mw+cgkUC9KTALs5qVbWz0g0bS20KaYarGcu
otcZAOMeJdBFWnpzhr1fxmjaNY4u4hrgPZSTU/iBjdHapoza3zAffxysmGYqs9dR
jFyxZeR4scz8GqSTFviNdH9jvtDJKdAC5hfMaB811Q==
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
MIIEqjCCA5KgAwIBAgIQAnmsRYvBskWr+YBTzSybsTANBgkqhkiG9w0BAQsFADBh
MQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNlcnQgSW5jMRkwFwYDVQQLEExB
d3cuZGlnaWNLcnQuY29tMSAwHgYDVQDEExdEaWdpQ2VydCBHbG9iYVwWgUm9vdCBD
QTAEfW0xNzExMjcMjQ2MmBaFw0yNzExMjcMjQ2MmBaMG4xCzAJBgNVBAYTAiVT
MRUwEwYDVQQKEwxEaWdpQ2VydCBjbmMxGTAXBgNVBAsTEHd3dy5kaWdpY2VydC5j
b20xLTArBgNVBAMTJEVUy3J5cHRpb24gRXZlcnlnaW50bWVzSBEVIBUTFMgQ0EgLSBH
MTCCASlwdQYJKoZIhvcNAQEBBQADggEPADCCAQoCggEBALPeP6wkab41dyQh6mKc
oHqt3jRlXW5MDVf9QyIOR7VfWk656es0UfIlb74N9pRntzF1UgYzDGu3ppZVMdo
lbxhm6dWS9OK/IFehKNT00YI9aqk6F+U7cA6jxSC+iDBPXwdF4rs3KRyp3aQn6pj
pp1yr71B6Y4zv72Ee/PLZ/6rK6InC6WpK0nPV0YR7n9iDuPe1E4ixUMBH/T33+3h
yuH3dvfgiWUOUkjdpMbyxX+XNle5uEliyBsi4lvbcTCh8ruifCii5mDXkZrnMT8n
wfYCV6v6kDdXkbgGRLKsR4pucbJtbKqIkUGxuZl2t7pfewKRc5nWecvDBZf3+p1M
pA8CAwEAaOCAU8wggFLMB0GA1UdDgQWBRRVDE+yck/1YLpQ0dfmUvYaAYca1zAf
BgNVHSMEGDAWgBQD3IA1VtFMu2bwo+IbG8OXsj3RVTAOBgNVHQ8EBf8EBAMCAYYw
HQYDVROlBBYwFAYIKwYBBQUHAWEGCCsGAQUFwMCMBlGA1UdEaEB/wQIMAYBAf8C
AAwNAYIKwYBBQUHAQEEDAmMCQGCCsGAQUFBzABhhodHRwOi8vb2Nzc5kaWdp
Y2VydC5jb20wQgYDVROfBDswOTA3oDWgM4YxaHR0cDovL2NybdMuZGlnaWNLcnQu
Y29tLORpZ2l2ZDZlZ0R2xvYmFsUm9vdENBLmNybdBMBG9wNVAERTBDMDCGCGWGSAGG
/WwBAJAqMCgCCsGAQUFBwIBFhxodHRwczovL3d3dy5kaWdpY2VydC5jb20vQ1BT
MAGBmeBDAEACATANBgkqhkiG9w0BAQsFAAOCAQEAK3Gp6/aGq7aBZsxf/oQ+TD/B
SwW3AU4ETK+GQf2kFzYzkby5SfrHdPomunx2HBzViUchGoofGgg7gHW0W3MIQAXW
M0r5LUvStcr82QDWWYNPaUy4taCQmya+VB+6wxHstSigOLSNF2a6vg4rgexixeiV
4YSB03Yap2t3TeZHM9ESfkus74nQyW7pRGezj+TC44xCagCQQOzzNmzEAP2SnCrJ
sNE2DpRVMnL8J6xBRdjmOsc3N6cQuKuRXbzByVbJcQAA8t1L0I+9wXJerLPyErjy
rMKWabFLmfK/AHNf4ZihwPGoc7w6UHczBZXH5RFzJNnww+WnKuTPI0HfnVH8lg==
-----END CERTIFICATE-----",
 "type": "server",
 "create_time": "2019-03-03 16:32:30",
 "private_key": "-----BEGIN RSA PRIVATE KEY-----
MIIEpQIBAAKCAQEArUw5UDKAL8i0el9XyoYTCG3RnrGzFujWV+336Y/V6wdyggq
pccyOFZh/T57b666SyTXqJYC6g2WXOMym1JJqsWNXbxg7ONXKCs3bXPSINtXlSuPM
H3rJ5Oa+dGn8lOdkdSZUhwzoYg4Rzksoazs3Nhq3i6wclihVGgLnua058jG80Gkj
7a0wKrFEWcHJiekdwOicKJDoMvWUruNbnz0lhZDIMcoCsRAS8yCS40agL0B2KMW7
E8qjW+o8KcOb+r3ESBHBQILPFAKVkaBco8u3jj91FjTORfjDr14a5cRKiD5v65c
BND5IZZpvQ4AWn2G98U/zLU9LUUnwiUB4CHLHQIDAQABAoIBAGs5r1SompP2OwA8
virwVRVXdPUQ5oxvbuTPys+A59RxVIU8kFW+qJ4fjMYsOFrXLtOtq+5tK20YBru
1ZLVfVqAowrELXB/J2ID+WTMkLORLsNlq1kW+nC9LL6PDY98LLW/n7FoFSKGI5HT
AxFGNGUvpr2vlojuL6nGfmcM47uscJ9aP6Ijxr4p70dhPVJZBdnMnXYwRkB3dZt/
E0B/p8J5i3oo5Rucv4DofB+01wXGAVyx5/zce+NZdhryrjk3hHV55SxGhVWzWhj
a3dAlbpKwYgflJj0inRdJYmljBdbG2HFix7+ncBg8B2oerJXC6/fANwRGU5/LZU
5xuPVWkCgYEA6an8TY1unlGLYL5aBj16Tx4usqMyTXr/T4zkQyftRPMt+ZuxVQHL
GHsg7XvLFNd04MBZxtkZXaYVcpOm7OUYcl0i9ZakWXXoXcBtN1Oom3gz/7RjAUnp
k+myvxCUSQ2JSz4u3Q8tyPVyYnBFXrKqdkfcYyG85+yQVHBNMvrdvMCgYEAvd0C
hFpm83ha+VQp+9XN1DYZNUyqhibj/E3X9jAn+gDbzlKxw/D9en2RILQYUr18+il8
QKk4cfOxjYStQxfzpt8QBPVeLajDN67zJ0Rk8AB50HHHCNSU8uFkaO8KxsvVjbLS
+JltqfJAeraXlinbp1Fxcg9DsQdMd6cw2DmrWa8CgYEA1UjOUzo80i4HYWDC4Vn
OEK3o22do+WqmEVLsfsG9BH5HedGve7V3EO/6aY+1/ZXBDPvH8mRAs9v8lbeXow7
hWCiYZfB5jre8HyOU4l8dPUCmdxhJrL913rRluASsQblet32ztuXCnWzP1X4nBj
/yF3UqFQKZ7SihcDAZVWo4CsGyEAj7al/BcNzlcynX2mldhdh583b4/LL+YCNm2Z
5eDHscZKmx8flCjRpZE8dXagPqXmwjtj6E1vDvQWP9m06VDNcThFHB+n00tLmidSk
evmbScuiaTRmmbJf2IThY0hlqNsc7PgKF2DTkIstEr0hLDFE8Z6FN6f0PiDfMcbD
Ax6L5EMCGYEA0+qhuQftKQkGdbXX9r3H8N0TVh27ByfL3kKvYy0dUJMvsOaq6d97
8mEhYhrYt88f1sFsPM7G09XpCcBxwiKxw8+CDt9auD4r1snBnLlppMPmanF4UDXH
L7s+4it+nIqy24P6g1PihztsM+HD2UCERBiYUdRK8Q9GGHdZojfK9Y=
-----END RSA PRIVATE KEY-----"
```

```
 },
 "update_time": "2019-03-03 16:32:30",
 "admin_state_up": true,
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "expire_time": "2019-07-10 12:00:00"
 },
 {
 "description": null,
 "domain": "www.elb.com",
 "id": "ef4d341365754a959556576501791b19",
 "name": "certificate_28b824c8bbe419992fb7974b2911c72",
 "certificate": "-----BEGIN CERTIFICATE-----
MIIDpTCCAo2gAwIBAgIJAKdmMObYnFvoMA0GCSqGSIb3DQEBCwUAMGkx
CzAJBgNV
BAYTAnh4MQswCQYDVQQLIDAJ4eDELMAkGA1UEBwwCeHgxGTAXBgkqhkiG9w0BCQEW
Cn44QDE2My5j
b20wHhcNMTcxMjA0MDM0MjQ5WhcNMjAxMjAzMDM0MjQ5WjBpMQswCQYDVQ
QGEwJ4
eDELMAkGA1UECAwCeHgxGTAXBgNVBACMANh4MQswCQYDVQQLIDAJ4eDELMAk
GA1UE
CwwCeHgxGTAXBgNVBAMMANh4MRkwFwYJKoZIhvcNAQkBFgp4eEAXNjMuYzY2
9tMIIB
ljANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCGKCAQEAwZ5UJULAJw7p6FVwGRQJfN
2s8tZ/6LC3X82fajpVsYqF1xqEuUDndDXVD09E4u83MS6HO6a3bIVQDp6/klnYld
iE6Vp8HH5B5SKaCWKvg8lGwg1UM9wZFnryi14KgmpIFmCu9nA8yV/6MZAe6RSDmb
3iyNBmiZ8aZhGw2p1YwR+15MVqFFGB+7ExkziROI7L8CFcyCezK2/oOOvQsH1dz
Q8z1JXWdG8/9Zx7Ktvgwu5PQM3ctSHX6iBPokMU8Z8TugLLTqQXKZOegwajwvQ5
mf2DPkVgM08XAgA1JcLigwD513koAdtJd5v+9irw+5LAuO3JclqWtwy7u/YwwlD
AQABo1AwTjAdBgNVHQ4EFgQUo5A2tlu+bcUfvGTD7wmEkhXKfjcwHwYDVR0jBBgw
FoAUo5A2tlu+bcUfvGTD7wmEkhXKfjcwDAYDVR0TBAUwAwEB/zANBgkqhkiG9w0B
AQsFAAOCAQEAWJ2rS6Mvlqk3GfEpboezx2J3X71z8Sxoqg6ntwB+rezvK3mc9H0
83qcVeUcoH+0A0LSHYFN4FvRQL6X1hEheHarYwJK4agb231vb5erasuGO463eYEG
r45fTuOm7SyiV2xxbaBKrXJtpBp4WLL/s+LF+nklKjaOxkmxUX0sM4CTA7uFjypY
c8tdr8IDDnqoUtMD8BrUCji+7lmMXRcC3Qi3oZJW76ja+kZA5mKVFPd1ATih8TbA
i34R7EQDtFeiSvBdeKRsp8c0KT8H1B4IXNkkCQs2WX5p4lm99+ZtLD4glw8x6lc
i1YhgnQbn5E0hz55OLu5jvOkKQjPCW+8Kg==
-----END CERTIFICATE-----",
 "type": "server",
 "create_time": "2018-09-28 03:00:47",
 "private_key": "-----BEGIN RSA PRIVATE KEY-----
MIIEowIBAAKCAQEAWZ5UJULAJw7p6FVwGRQJfN2s8tZ/6LC3X82fajpVsYqF1x
qEuUDndDXVD09E4u83MS6HO6a3bIVQDp6/klnYldiE6Vp8HH5B5SKaCWKvg8lGwg1
UM9wZFnryi14KgmpIFmCu9nA8yV/6MZAe6RSDmb3iyNBmiZ8aZhGw2p1YwR+15
MVqFFGB+7ExkziROI7L8CFcyCezK2/oOOvQsH1dzQ8z1JXWdG8/9Zx7Ktvgwu5PQ
M3ctSHX6iBPokMU8Z8TugLLTqQXKZOegwajwvQ5mf2DPkVgM08XAgA1JcLigwD5
13koAdtJd5v+9irw+5LAuO3JclqWtwy7u/YwwlDAQABAoIBACU955fD9j/TMXA
DRs08A+gGgZUxLn0xk+NAPX3LyB1tfdkCaFB8BccLzO6h3KZuwQOBPv6jkdVdbx
Nwyw3eA/9GJslvKiHcOrejdyPymaw9I8MA7NbXHalrY7KpQDQyk6sx+aUTcy5jg
iMXLWdwXYHhJ/1HVOo603oZyiS6HZeYU089NDUcX+1Sji3e5Ke0gPVXEgCq1O11/
rh24bMxmwZo4PKBWdcMBN5Zf/4ij9vrZE+ffZw7vGBO48A5lvZxWU2U5t/OZQRtN
1uLOHmMFa0FIF2aWbTVfwdUWAFsvAOKHj9V8BXOUwKOUUektDkfAlvrXmsFrO/H
yDeYYPkCgYEA/S55CBbR0sMXpSZ56uRn8JHApZJhgkgvYr+FqDUq/e92nAzf01P
RoEBUajwrmf1yceN/SDfhtWzq2XJGqhWdJmtpO16b7KBsC6BdRcH6dnOYh31jgA
vABMIP3wzI4zSVTyxRE8LDuboytF1mSCeV5tHYPQTZnwrplDnLQhywcCgYEAw8Yc
Uk/eiFr3hfH/ZohMfV5p82Qp7DNIGRzw8YtVG/3+vNXrAXW1VhugNhQY6L+zLJC
aKn84ooup0m3YCG0hvlNqluvzfsuzQgtjTXyaE0cEwsjUusOmiuj09vVx/3U7siK
Hdj2ICPCvQ6Q8tdi8jV320gMs05AtaBkZdsiWUCgYEAAtLw4Kk4f+xTKDFsrLUNf
75wcoqhWVBiwBp7yQ7UX4EysJPKZcHMRTk0EEcAbpyaJZE3I44vjp5ReXIHNLmfPs
uvi34J4Rfot0LN3n7cFrAi2+wpNo+MOBwrNzPmijGP2uKKkrq4JiMjFbKV/6utGF
Up7VxfwS904JYpqaZctiIECgYA1A6nZtF0riY6ry/uAdXpZHL8ONNqRZtWoT0kD
79otSVu5iSiRbaGcXsDExC52oKrSDAgFtbqQUiEOfg09UcXfoR6HwRkba2CiDwve
yHQLQI5QRdxz8Mk0glrNrSM4FamcW9vi9z4kCbQyoC5C+4gqeUURpDikQBWP2Y4
2ct/bQKBgHv8qCsQTZphOxc31BJPa2xVhuv18cEU3XLUrVfUZ/1f43JhL7gynS2
ep++LkUi9D0VGXY8bqvFjBECeCu85vl8NpCXwe/LoVoln+7KaVIZMwqoGMfngNl
nEqm7HWkNxHhf8A6En/ljleuddS1sf9e/x+TJN1Xhnt9W6pe7Fk1
-----END RSA PRIVATE KEY-----",
 "update_time": "2018-09-28 03:00:47",
 "admin_state_up": true,
 "tenant_id": "601240b9c5c94059b63d484c92cfe308",
 "expire_time": "2020-12-03 03:42:49"
 }
],
```

```
"instance_num": 2
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.9.3 Querying Details of a Certificate

### Function

This API is used to query details about a certificate.

### Constraints

None

### URI

GET /v2/{project\_id}/elb/certificates/{certificate\_id}

**Table 6-204** Parameter description

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

### Request

None

### Response

**Table 6-205** Parameter description

| Parameter | Type   | Description                                                                                                       |
|-----------|--------|-------------------------------------------------------------------------------------------------------------------|
| id        | String | Specifies the certificate ID.                                                                                     |
| tenant_id | String | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters. |

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                   |
|----------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .                                                                                                                                                                     |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                            |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                  |
| type           | String  | Specifies the certificate type.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• <b>server</b>: indicates the server certificate.</li> <li>• <b>client</b>: indicates the CA certificate.</li> </ul> |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                                          |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                                            |
| certificate    | String  | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format.                         |
| expire_time    | String  | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                     |
| create_time    | String  | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                 |
| update_time    | String  | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                 |



## Example Request

- Example request: Querying details of a certificate  
GET https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/certificates/  
23ef9aad4ecb463580476d324a6c71af

## Example Response

- Example response 1  

```
{
 "certificate":
 "-----BEGIN CERTIFICATE-----
 \nMIIC4TCCAcmgAwIBAgICERewDQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
 \nb21wYW55IENBMB4XDTE4MDcwMjEzMDU0N1oXDTE4MDU0N1oXDTQ1MTE4MDU0N1owFDESMBAG
 \nA1UEAwJbG9jYXRob3R0MIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
 \n0FQgzi3ucTX+DNud1p/b4XVM6I3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
 \nU0NqPQZKUrZ3rQeLN9mYiUTJZPutYIFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh9
 \n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
 \nIzlsxD+QM6l7QjHwJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQylYKy4zgnv1tn/K
 \ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPILZUUn7yw3nkOOTLMI28IEv0WY
 \nyd7CMJQKs1NPJBKNOGFR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
 \nhwQKuUvJhWR/AAABMBMG1UdJQMMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBCwUA
 \nA4IBAQA8IMQJxaTey7EjXtRLSVIEAMftAQP6jijNQuvIBYQUDauDT4W2UZ5wAn
 \njiOyQ83va672K1G9s8n6xLH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
 \nezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNYjvPRLYLzp1HMnl6hkjPk4PCZ
 \nwkNha0dlScati9Cct3UzXSNJOSLalKdHErH08lqd+1BchScxCfk0xNITn1HZZZGml
 \n+vbmunok3A2lucl14rnsrbcGyqXGikySN6B2cRLBDK4Y3wChiW6NvYtVqcx5/mZ
 \niYsGDVN+9QBd0eYUHce+77s96i3l
 \n-----END CERTIFICATE-----",
 "create_time": "2017-02-25 09:35:27",
 "expire_time": "2045-11-17 13:25:47",
 "description": "description for certificate",
 "domain": "www.elb.com",
 "id": "23ef9aad4ecb463580476d324a6c71af",
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "admin_state_up": true,
 "name": "https_certificate",
 "private_key":
 "-----BEGIN PRIVATE KEY-----
 \nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M
 \n253Wn9vhdUzojetjv4j+B7kYwsMhRcgdcj8KCNx1nfzTvl2ksXITQ2o9BkpStnPe
 \ntB4s32ziJRMlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
 \nMD30gLh6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AzzXt
 \nCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
 \nZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
 \nEo04Z9H/AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSgFa2tD60SXY2fUieh8/HL
 \nfvCArftGgMaYWPNSNCJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
 \nZVe4a5Hj1OcgYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vE9LmHhKkNKKr
 \nciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9lc9M
 \nEGpfYI6AdHlwFzCt/RNAXhP82lg2gUJSgAu66FfDjMwQXKbafKdP3zq4Up8a7Ale
 \nkrguPtFv1vWklg+bUfhgGaiAEYTpAUN9t2DVLiijgQKBgQDnYMMsaF0r557CM1CT
 \nXUqgCz08MKeV2jf2drLxRRwRL33SksQbzAQ/qrLdT7GP3sCGqvxWY2FPdFyF8kx
 \nGcZeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPSPH7JNF3Tm/JH/fbwjP7dt
 \nJ7n8EzkRUNE6alMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
 \niWgTWHXPZxUQaYhpjXo6+IMl6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
 \nIS6VjoTkF6r7VZolLXX0fbuXh6lm8K8lQRfBjFff56p9phMwaBpDNDrfpHB5utBU
 \nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jr4eB
 \n1lVQhELG9CbKSdzKM71GyElmix/T7FnSHIWLho1qVo6AQyduNWNwAQD15pr8KAd
 \nXGXAZZ1FQcb3KYa+2fflERmazdOTwYjZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
 \n/735uP20KKqhNehZpC2dJei7OiiRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
 \nfl7FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMrAoveLa+2cFm1Agf
 \n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLAOGBAJKD4wHW54PwD4Ctfk9o
 \njHjWB7pQUYpTZO9dm+4fpCMn9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9lIuk
 \nfaoXgjkR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
 \n3fy+1rCUwzOp9LSjtYf4ege
 \n-----END PRIVATE KEY-----",
 "type": "server",
 "update_time": "2017-02-25 09:35:27"
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.9.4 Updating a Certificate

### Function

This API is used to update a certificate.

### Constraints

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

### URI

PUT /v2/{project\_id}/elb/certificates/{certificate\_id}

**Table 6-206** Parameter description

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

### Request

**Table 6-207** Parameter description

| Parameter      | Mandatory | Type    | Description                                                                                                                                                                  |
|----------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| admin_state_up | No        | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .<br>This parameter is reserved. The value can only be <b>true</b> . |
| name           | No        | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                           |

| Parameter   | Mandatory | Type   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|-----------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| description | No        | String | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| domain      | No        | String | Specifies the domain name associated with the server certificate. The default value is <b>null</b> .<br>The value contains a maximum of 100 characters.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"> <li>• A common domain name contains 0 to 100 characters and consists of several strings separated by periods (.). Each string can contain a maximum of 63 characters, including letters, digits, and hyphens (-), and must start and end with a letter or digit.</li> <li>• In addition to the requirements for common domain names, a wildcard domain name can start with an asterisk (*). This parameter is valid only when <b>type</b> is set to <b>server</b>.</li> </ul> <b>NOTE</b><br>This parameter is valid only when <b>type</b> is set to <b>server</b> . |
| private_key | No        | String | Specifies the private key of the server certificate.<br>The private key is in PEM format.<br><b>NOTE</b><br>This parameter is valid and mandatory only when <b>type</b> is set to <b>server</b> .<br>This parameter is invalid only when <b>type</b> is set to <b>client</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| certificate | No        | String | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Response

**Table 6-208** Parameter description

| Parameter      | Type    | Description                                                                                                                                                                                                                                                                |
|----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| id             | String  | Specifies the certificate ID.                                                                                                                                                                                                                                              |
| tenant_id      | String  | Specifies the ID of the project where the certificate is used.<br>The value contains a maximum of 255 characters.                                                                                                                                                          |
| admin_state_up | Boolean | Specifies the administrative status of the certificate.<br>The value can be <b>true</b> or <b>false</b> .                                                                                                                                                                  |
| name           | String  | Specifies the certificate name.<br>The value contains a maximum of 255 characters.                                                                                                                                                                                         |
| description    | String  | Provides supplementary information about the certificate.<br>The value contains a maximum of 255 characters.                                                                                                                                                               |
| type           | String  | Specifies the certificate type.<br>The value range varies depending on the protocol of the backend server group: <ul style="list-style-type: none"><li>• <b>server</b>: indicates the server certificate.</li><li>• <b>client</b>: indicates the CA certificate.</li></ul> |
| domain         | String  | Specifies the domain name associated with the server certificate.<br>The value contains a maximum of 100 characters.                                                                                                                                                       |
| private_key    | String  | Specifies the private key of the server certificate in PEM format.                                                                                                                                                                                                         |
| certificate    | String  | Specifies the public key of the server certificate or CA certificate used to authenticate the client. The value of parameter <b>type</b> determines whether a public key or CA certificate is required. Both types of certificates are in PEM format.                      |
| expire_time    | String  | Specifies the time when the certificate expires.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format.                                                                                                                                                                  |

| Parameter   | Type   | Description                                                                                                   |
|-------------|--------|---------------------------------------------------------------------------------------------------------------|
| create_time | String | Specifies the time when the certificate was created.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |
| update_time | String | Specifies the time when the certificate was updated.<br>The UTC time is in <i>YYYY-MM-DDTHH:MM:SS</i> format. |

## Example Request

- Example request: Updating a certificate

```
PUT https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/certificates/23ef9aad4ecb463580476d324a6c71af
{
 "certificate":
 "-----BEGIN CERTIFICATE-----
 \nMIIC4TCCAcmgAwIBAgICEREWdQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
 \nb21wYW55IENBMB4XDTE4MDcwMjEzMTU0N1oXDTQ1MTEwNzEzMTU0N1owFDESMBAG
 \nA1UEAwJbG9jYXN0b3N0MIIlBlJANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA
 \n0FQgzi3ucTX+DNud1p/b4XVM6I3rY7+Cfge5GMLDIUXIHXCfCgp19Z3807yNpLF5
 \nU0NqPQZKUrZz3rQeLN9mYiUTJZPutYIFDDbB8CtIgv+eyU9yYJslWx/Bm5kWNPh9
 \n7B9Yu9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
 \nIzlsxD+QM6l7QjWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyLYKy4zgnv1tn/K
 \ny09cxLKAftgoZWQD2FAZJf9F7k1kYNwqlTz3CPILZUUn7yw3nkOOTLMI28IEv0Wy
 \nYd7CMJQkS1NPJBKNOGfR/wIDAQABozowODAhBgNVHREEGjAYggpkb21haW4uY29t
 \nhwQKuUvJhwr/AAABMBMGA1UdJQMMAoGCCsGAQUFBwMBMA0GCsGSIb3DQEBwUAA
 \nA4IBAQA8lMQxaTey7EjXtRLSVIEAMftAQPG6jjjNQUVlBQYUDauDT4W2XUz5wAn
 \njiOyQ83va672K1G9s8n6xLH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
 \nezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNjvPRLYLzp1HMnl6hkjPk4PCZ
 \nwkKha0dlScatI9Cct3UzXSNJOSLalKdHERH08lqd+1BchScxCfk0xNITn1HZZZGml
 \n+vbmunok3A2lucl14rnsrbcGyqXGikySN6B2cRLBDK4Y3wChiW6NVVtVqcx5/mZ
 \niYsGDVN+9QBd0eYUHce+77s96i3l
 \n-----END CERTIFICATE-----",
 "description": "description for certificate",
 "domain": "www.elb.com",
 "name": "https_certificate",
 "private_key":
 "-----BEGIN PRIVATE KEY-----
 \nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQDQVAbOLe5xNf4M
 \n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcj8KCnX1nfzTvl2ksXITQ2o9BkpStnPe
 \ntB4s32ziJRMlk+61iUUMNsHwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
 \nMD30gH6QoP3cq7PGWcuZKV7hjd1tjCTQukwMvqV8lCq39buNplgDOWzEP5AzcXt
 \nCOFYn6RTH5SRug4hKNN7sT1eYMSlHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Chl
 \nZAPYUBkl/0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k
 \nEo04Z9H/AgMBAAECggEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
 \nfvCARftGgMaYWPSNcJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
 \nZVe4a5Hj1OcgJYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
 \nciu9YklnNEHu6uRJ5g/eGGX3KQynTvIhnOVGAJvjTxcoU6fm7gYdHAD6jk9lc9M
 \nEGpfYI6AdHlwFzCT/RNAXhP82lg2gUJSgAu66FFdJmWQXKbafKdP3zq4Up8a7Ale
 \nkrnguPtfV1vWklg+bUfhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
 \nXUqgCzo8MKeV2jf2drLxRRwRl33SksQzbAQ/qrLd7GP3sCGqvkwWY2FPdFYf8kx
 \nGcCeZPcleZYQAM41pjtsaM8tVbLWVR8UtGBUqoPSPH7JNF3Tm/JH/fbwjP7dt
 \nj7n8EzkRUNE6alMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9Vt7mTgKYK4aLr
 \niWgTWHXPzXUQaYhpjXo6+IMl6DpExiDgBAkMzJGlvS7yQiYWU+wthAr9urbWYdGZ
 \nIS6VjoTkF6r7VZolLXX0fbuXh6lm8K8lQRfBjff56p9pMwaBpDNDrfpHB5utBU
 \nxs40yldp6wkBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jr4eB
 \n1lVQhELG9CbKsDzKM71GyElmix/T7FnSHIWIWlho1qVo6AQyduNWNwAQD15pr8KAd
 \nXGAXAZZ1FQcb3KYa+2fflERmazdOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak
```

```
\n/735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha
\nfl7FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMJrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLaOGBAJkD4wHW54PwD4Ctfk9o
\njHjWB7pQLUYpTZO9dm+4fPCMN9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9IluK
\nfaoXgjKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd
\n3fy+1rCUwzOp9LSjtYf4ege
\n-----END PRIVATE KEY-----"
}
```

## Example Response

- Example response 1

```
{
 "certificate": "-----BEGIN CERTIFICATE-----
\nMIIC4TCCAcmgAwIBAgICEREWdQYJKoZIhvcNAQELBQAwFzEVMBMGA1UEAxMMTXID
\nb21wYW51ENBMB4XDTE4MDcwMjEzMTU0N1oXDTE4MDcwMjEzMTU0N1owFDESMBAG
\nA1UEAwJbG9jYWxob3N0MIIlBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEA\n0nFQZi3ucTX
+DNud1p/
b4XVM6l3rY7+Cfge5GMLDIUXIHXCfGp19Z3807yNpLF5\nU0N0qPQZKUrZz3rQeLN9mYiUTJZPutYlFDDb
B8CtIqV+eyU9yYJstWx/
Bm5kWNPh9\n7B9YU9pbp2u6zDA99IC4ekKD93KuzxlnLmSle4Y3dbYwk0LpMDL6lfCHKt/W7jaS
\nlAzlsxD+QM6l7QjhWJ+kUx+UkboOISjTe7E9XmDLJR7u8LRAQyYKy4zgnv1tn/K
\ny09cxlKAFTgoZWQD2FAZJf9F7k1kYNwqITz3CPILZUUn7yw3nkOOTLMI28Iev0WY
\nYd7CMJQkS1NPJBKNQGFwIDAQABozowODAhBgNVHREEGjAYGgpkb21haW4uY29t
\nnhwQKuUvJhwr/AAABMBMGA1UdJQMMMAoGCCsGAQUFBwMBMAoGCCsGSIb3DQEBcWUA
\nA4lBAQA8lMQJxaTey7EjXtRSLVIEAMftAQPG6ijNQuvIBQYUDauDT4W2XU25wAn
\nnjiOyQ83va672K1G9s8n6xlH+xwwdSNnozaKzC87vwSeZKIOdl9I5I98TGKI6OoDa
\nnezmzCwQYtHBMVQ4c7Ml8554Ft1mWSt4dMAK2rzNyjvPRLYLzp1HMnl6hkjPk4PCZ
\nnwKnh0dlScati9CCt3UzXSNJOSLalKdHerH08lqd+1BchScxChk0xNITn1HZZGml\n
+vbmunok3A2lucl14nrsrbkGyqxGikySN6B2cRLBDK4Y3wChiW6NVYtVqcx5/mZ\niYsGDVN
+9QBd0eYUHce+77s96i3l\n-----END CERTIFICATE-----",
 "expire_time": "2045-11-17 13:25:47",
 "create_time": "2017-02-25 09:35:27",
 "update_time": "2017-02-25 09:38:27",
 "id": "23ef9aad4ecb463580476d324a6c71af",
 "description": "description for certificate",
 "domain": "www.elb.com",
 "type": "server",
 "admin_state_up": true,
 "tenant_id": "a31d2bdcf7604c0faaddb058e1e08819",
 "name": "https_certificate",
 "private_key": "-----BEGIN PRIVATE KEY-----
\nMIIEvgIBADANBgkqhkiG9w0BAQEFAASCBKgwggSkAgEAAoIBAQQDQVAbOLe5xNf4M
\n253Wn9vhdUzojetjv4J+B7kYwsMhRcgdcJ8KcX1nfzTvl2ksXITQ2o9BkpStnPe\n\ntB4s32ZiIRMIk
+61iUUMNshwK2WBX57JT3JgmyVbH8GbmRY0+H3sH1i72luna7rM
\nMD30gH6QoP3cq7PGWcuZKV7hd1tjCTQukwMvqV8lq39buNplgDOWzEP5AzaqXt
\nCOFYn6RTH5SRug4hKNN7sT1eYmSlHu7wtEBDKVgrLjOCe/W2f8rLT1zEsoAW2Ch\n\nZAPYUBkl/
0XuTWRg3CohPPcl+UtlRSfvLDeeQ460swjbgwS/RbJh3slwCRLU08k\n\nEoA029H/
AgMBAAECCgEAEleaQqHCWZk/HyYN0Am/GJSGFa2tD60SXY2fUieh8/Hl
\nfvfCArftGgMaYWPNSCJRMXB7tPwpQu19esjz4Z/cR2Je4fTLPrffGUsHFgZjv5OQB
\nZve4a5Hj1OcgYhwCqPs2d9i2wToYNBbcfgh8lSETq8YaXngBO6vES9LMhHkNKKr
\nnciu9YklnNEHu6uRJ5g/eGGX3KQynTvVlhnOVGAJvjTXcoU6fm7gYdHAD6jk9c9M
\nEGpFYI6AdHlwFZcT/RNAXhP82lg2gUJSgAu66FFDjMwQXKbafKdP3zq4Up8a7Ale\n\nnkrquPtfV1vWklg
+bUfhgGaiAEYTpAUN9t2DVliijgQKBgQDnYMMsaF0r557CM1CT
\nXUqgCZo8MKeV2jf2drLxRRwRL33SksQbzAQ/qrLdT7GP3sCGqvKxWY2FPdFyf8kx
\nGcCeZPcleZYCQAM41pjtsaM8tVbLWVR8UtGBuQoPspH7JNF3Tm/JH/fbwjpp7dt
\n7n8EzkrUNE6alMHOFeych/PQKBgQDmf1bMogx63rTcwQ0PEZ9vt7mTgKYK4aLr
\nniWgTWHXPZxUQaYhpjXo6+IMI6DpExiDgBAkMzJGlvS7yQiYyWU+wthAr9urbWYdGZ
\nlS6VjoTkF6r7VZolLXx0fbuXh6lm8K8lQRfBpJff56p9phMwaBpDNDrfpHB5utBU
\nxs40yldp6wKBgQC69Cp/xUwTX7GdxQzEJctYiKnBHKcspAg38zJf3bGSXU/jR4eB
\n1lVQhELG9CbKsDzKM71GyElmix/T7FnSHIWIho1qVo6AQyduNWnAQD15pr8KAd
\nXGXAZZ1FQcb3KYa+2fflERmazdOTwjYZ0tGqZnXkEeMdSLkmqlCRigWhGQKBgDak\n\n/
735uP20KKqhNehZpC2dJei7OilgRhCS/dKASUXHSW4fptBnUxACYocdDxtY4Vha\n\nfl7FPMdvGl8ioYbvlHFh+X0Xs9r1S8yeWnHoXMB6eXWmYKMJrAoveLa+2cFm1Agf
\n7nLhA4R4lqm9lpV6SKegDUkR4fxp9pPyodZPqBLLaOGBAJkD4wHW54PwD4Ctfk9o
\njHjWB7pQLUYpTZO9dm+4fPCMN9Okf43AE2yAOaAP94GdzdDJKxfciXKcsYr9IluK
\nfaoXgjKR7p1zERiWZuFF63SB4aiyX1H7IX0MwHDZQO38a5gZaOm/BUIGKMWXzuEd\n\n3fy
+1rCUwzOp9LSjtYf4ege\n\n-----END PRIVATE KEY-----"
}
```

## Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

## 6.9.5 Deleting a Certificate

### Function

This API is used to delete a certificate.

### Constraints

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

### URI

DELETE /v2/{project\_id}/elb/certificates/{certificate\_id}

**Table 6-209** Parameter description

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

### Request

None

### Response

None

### Example Request

- Example request: Deleting a certificate  
DELETE https://{Endpoint}/v2/a31d2bdcf7604c0faaddb058e1e08819/elb/certificates/23ef9aad4ecb463580476d324a6c71af

### Example Response

- Example response  
None

### Status Code

For details, see [7.1 HTTP Status Codes of Load Balancers](#).

# 7 Common Parameters

## 7.1 HTTP Status Codes of Load Balancers

**Table 7-1** Normal codes

| Normal Code | Message    | Description                                                        |
|-------------|------------|--------------------------------------------------------------------|
| 200         | OK         | Specifies the normal response code for the GET and PUT operations. |
| 201         | Created    | Specifies the normal response code for the POST operation.         |
| 204         | No Content | Specifies the normal response code for the DELETE operation.       |
| 202         | Accepted   | Specifies the normal response code for the PUT operation.          |

**Table 7-2** Error codes

| Error Code | Type        | Description                   |
|------------|-------------|-------------------------------|
| 400        | Bad request | Malformed request URI or body |
|            |             | Requested admin state invalid |
|            |             | Invalid values entered        |
|            |             | Bulk operations disallowed    |
|            |             | Validation failed             |



| Error Code | Type                  | Description                                                                                                         |
|------------|-----------------------|---------------------------------------------------------------------------------------------------------------------|
|            |                       | Method not allowed for request body (such as trying to update attributes that can be specified at create-time only) |
|            |                       | The network is not external, such as router:external=False.                                                         |
|            |                       | The internal OpenStack Networking port is not associated with the floating IP address.                              |
|            |                       | The requested floating IP address does not fall in the subnet range for the external network.                       |
|            |                       | The fixed IP address is not valid.                                                                                  |
|            |                       | Router port must have exactly one fixed IP                                                                          |
|            |                       | Subnet for router interface must have a gateway IP                                                                  |
| 401        | Unauthorized          | Authentication required                                                                                             |
| 403        | Forbidden             | Non existent URI<br>Resource not found                                                                              |
| 404        | Not Found             | Non existent URI                                                                                                    |
|            |                       | Resource not found                                                                                                  |
|            |                       | The port UUID is not valid.                                                                                         |
| 409        | Conflict              | Port configured on network                                                                                          |
|            |                       | IP allocated on subnet                                                                                              |
|            |                       | Conflicting IP allocation pools for subnet                                                                          |
|            |                       | The requested floating IP address is already in use.                                                                |
|            |                       | The internal OpenStack Networking port and fixed IP address are already associated with another floating IP.        |
| 500        | Internal server error | Internal OpenStack Networking error                                                                                 |
| 503        | Service unavailable   | Failure in Mac address generation                                                                                   |

**Table 7-3** Error codes for each module

| Module        | HTTP Status Code | Error Code | Error Message                                                                  | Description                                                                                                                           | Solution                                                         |
|---------------|------------------|------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Load balancer | 400              | ELB.0002   | RequestBody is null or empty,request is invalid.                               | The request body is empty.                                                                                                            | Set parameters by following the instructions in this guide.      |
|               | 401              | ELB.1102   | Token is error, Authentication required.                                       | The token is empty.                                                                                                                   | Use a correct token that has not expired.                        |
|               | 400              | ELB.0002   | RequestBody is null, request is invalid.                                       | Failed to convert the request body.                                                                                                   | Set parameters by following the instructions in this guide.      |
|               | 400              | ELB.9805   | RequestBody loadbalancer[vip_subnet_id] is null, this is a required parameter. | <b>vip_subnet_id</b> in the request body is empty.                                                                                    | Set the parameter by following the instructions in this guide.   |
|               | 400              | ELB.1202   | 1.decoded token is null.<br>2.checkEnterprise Project is error.                | <ul style="list-style-type: none"> <li>The token is empty.</li> <li>An error occurred during verification of <b>ep_id</b>.</li> </ul> | Check the enterprise project ID.                                 |
|               | 403              | ELB.9802   | Policy doesn't allow elb:loadbalancers:list to be performed.<br>etc.           | Authentication failed.                                                                                                                | Check whether you have the permission to perform this operation. |
|               | 403              | ELB.9803   | Policy doesn't allow elb:loadbalancers:list to be performed.<br>etc.           | Authentication failed.                                                                                                                | Check whether you have the permission to perform this operation. |

|  |     |           |                                                                                                           |                                                                          |                                                                  |
|--|-----|-----------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------|
|  | 403 | ELB. 9804 | Policy doesn't allow elb:loadbalancers:list to be performed. etc.                                         | Authentication failed.                                                   | Check whether you have the permission to perform this operation. |
|  | 400 | ELB. 0004 | Api response is null or invalid.                                                                          | The response returned by Neutron is <b>null</b> .                        | Contact customer service.                                        |
|  | 400 | ELB. 9899 | The default_tls_container_ref field of the TERMINATED_HTTPS listener does not allow updating to null etc. | Combined API failed to send the request to Neutron.                      | Rectify the fault based on the error information.                |
|  | 400 | ELB. 9807 | Quota exceeded for resources: ['loadbalancer'].                                                           | The load balancer quota has been used up.                                | To expand the quota, contact customer service.                   |
|  | 400 | ELB. 1204 | Bind fail.                                                                                                | Failed to associate the load balancer with the enterprise project.       | Contact customer service.                                        |
|  | 400 | ELB. 9805 | Ep_id is not uuid.                                                                                        | <b>ep_id</b> in the URI is not a valid UUID.                             | Check the enterprise ID.                                         |
|  | 400 | ELB. 9806 | Loadbalancer_id in url is null or empty. etc.                                                             | <b>loadbalancer_id</b> in the URI is empty.                              | Check whether the load balancer ID in the URL is correct.        |
|  | 404 | ELB. 9800 | Resource could not be found.                                                                              | The specified load balancer does not exist when <b>ep_id</b> is queried. | Check the load balancer ID.                                      |

|          |     |           |                                                                              |                                                                                                                                  |                                                                                          |
|----------|-----|-----------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|          | 400 | ELB. 9808 | Tenant_id in token mismatches with tenant_id in url.                         | The value of <b>tenant_id</b> in the token is different from that in the URL.                                                    | Check whether parameter <b>tenant_id</b> in the token and URL is correct.                |
|          | 403 | ELB. 9801 | Not be list action, enterprise_project_id must not be null.                  | In the fine-grained authorization scenario, the enterprise ID is not transmitted in the request for querying the load balancers. | Check whether the parameters in the request for querying the load balancers are correct. |
| Listener | 400 | ELB. 0002 | Listener is null, request is invalid.                                        | The request body is empty.                                                                                                       | Set parameters by following the instructions in this guide.                              |
|          | 400 | ELB. 9805 | RequestBody listener[protocol] is null, this is a required parameter.        | <b>protocol</b> in the request body is empty.                                                                                    | Set the parameter by following the instructions in this guide.                           |
|          | 400 | ELB. 9805 | RequestBody listener[protocol_port] is null, this is a required parameter.   | <b>protocol_port</b> is empty.                                                                                                   | Set the parameter by following the instructions in this guide.                           |
|          | 400 | ELB. 9805 | RequestBody listener[loadbalancer_id] is null, this is a required parameter. | <b>loadbalancer_id</b> is empty.                                                                                                 | Set the parameter by following the instructions in this guide.                           |
|          | 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. 9807 | Quota exceeded for resources: ['listener'].                                  | The listener quota has been used up.                                                                                             | To expand the quota, contact customer service.                                           |

|                      |     |           |                                                                                                                           |                                            |                                                                |
|----------------------|-----|-----------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------|
| Backend server group | 400 | ELB. 0002 | Pool is null, request is invalid.                                                                                         | The request body is empty.                 | Set parameters by following the instructions in this guide.    |
|                      | 400 | ELB. 9805 | RequestBody pool[protocol] is null, this is a required parameter.                                                         | <b>protocol</b> is empty.                  | Set the parameter by following the instructions in this guide. |
|                      | 400 | ELB. 9805 | RequestBody pool[lb_algorithm] is null, this is a required parameter.                                                     | <b>lb_algorithm</b> is empty.              | Set the parameter by following the instructions in this guide. |
|                      | 400 | ELB. 9807 | Quota exceeded for resources: ['pool'].                                                                                   | The load balancer quota has been used up.  | To expand the quota, contact customer service.                 |
|                      | 400 | ELB. 9805 | RequestBody pool[loadbalancer_id] and pool[listener_id] both are null, this has at least one parameter.                   | <b>listener_id</b> is empty.               | Set the parameter by following the instructions in this guide. |
| Backend server       | 400 | ELB. 9805 | RequestBody pool[session_persistence][type] is null. when pool[session_persistence] exists, this is a required parameter. | <b>session_persistence</b> is empty.       | Set the parameter by following the instructions in this guide. |
|                      | 400 | ELB. 0002 | Member is null,request is invalid.                                                                                        | The request body is empty.                 | Set parameters by following the instructions in this guide.    |
|                      | 400 | ELB. 9805 | RequestBody member[address] is null, this is a required parameter.                                                        | <b>address</b> is empty.                   | Set the parameter by following the instructions in this guide. |
|                      | 400 | ELB. 9807 | Quota exceeded for resources: ['member'].                                                                                 | The backend server quota has been used up. | To expand the quota, contact customer service.                 |

|              |     |           |                                                                               |                                                               |                                                                |
|--------------|-----|-----------|-------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------|
|              | 400 | ELB. 9805 | RequestBody member[address]'s length is %s, greater than 64.                  | The value of <b>address</b> contains more than 64 characters. | Set the parameter by following the instructions in this guide. |
|              | 400 | ELB. 9805 | RequestBody member[protocol_port] is null, this is a required parameter.      | <b>protocol_port</b> is empty.                                | Set the parameter by following the instructions in this guide. |
| Health check | 400 | ELB. 9805 | RequestBody member[subnet_id] is null, this is a required parameter.          | <b>subnet_id</b> is empty.                                    | Set the parameter by following the instructions in this guide. |
|              | 400 | ELB. 0002 | healthmonitor is null,request is invalid.                                     | The request body is empty.                                    | Set the parameter by following the instructions in this guide. |
|              | 400 | ELB. 9805 | RequestBody healthmonitor[delay] is null, this is a required parameter.       | <b>delay</b> is empty.                                        | Set the parameter by following the instructions in this guide. |
|              | 400 | ELB. 9805 | RequestBody healthmonitor[max_retries] is null, this is a required parameter. | <b>max_retries</b> is empty.                                  | Set the parameter by following the instructions in this guide. |
|              | 400 | ELB. 9805 | RequestBody healthmonitor[pool_id] is null, this is a required parameter.     | <b>pool_id</b> is empty.                                      | Set the parameter by following the instructions in this guide. |
|              | 400 | ELB. 9807 | Quota exceeded for resources: ['healthmonitor'] .                             | The health check quota has been used up.                      | To expand the quota, contact customer service.                 |
|              | 400 | ELB. 9805 | RequestBody healthmonitor[timeout] is null, this is a required parameter.     | <b>timeout</b> is empty.                                      | Set the parameter by following the instructions in this guide. |

|                   |     |           |                                                                          |                                               |                                                                |
|-------------------|-----|-----------|--------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------|
| Forwarding policy | 400 | ELB. 9805 | RequestBody healthmonitor[type] is null, this is a required parameter.   | <b>type</b> is empty.                         | Set the parameter by following the instructions in this guide. |
|                   | 400 | ELB. 0002 | l7policy is null,request is invalid.                                     | The request body is empty.                    | Set the parameter by following the instructions in this guide. |
|                   | 400 | ELB. 9807 | Quota exceeded for resources: ['l7policy'].                              | The forwarding policy quota has been used up. | To expand the quota, contact customer service.                 |
|                   | 400 | ELB. 9805 | RequestBody l7policy[listener_id] is null, this is a required parameter. | <b>listener_id</b> is empty.                  | Set the parameter by following the instructions in this guide. |
| Forwarding rule   | 400 | ELB. 9805 | RequestBody l7policy[action] is null, this is a required parameter.      | <b>action</b> is empty.                       | Set the parameter by following the instructions in this guide. |
|                   | 400 | ELB. 0002 | Rule is null,request is invalid.                                         | The request body is empty.                    | Set the parameter by following the instructions in this guide. |
|                   | 400 | ELB. 9805 | RequestBody rule[type] is null, this is a required parameter.            | <b>type</b> is empty.                         | Set the parameter by following the instructions in this guide. |
|                   | 400 | ELB. 9807 | Quota exceeded for resources: ['l7policyrule'].                          | The forwarding rule quota has been used up.   | To expand the quota, contact customer service.                 |
|                   | 400 | ELB. 9805 | RequestBody rule[compare_type] is null, this is a required parameter.    | <b>compare_type</b> is empty.                 | Set the parameter by following the instructions in this guide. |

|           |     |           |                                                                           |                                                                    |                                                                |
|-----------|-----|-----------|---------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------|
|           | 400 | ELB. 9805 | RequestBody rule[value] is null, this is a required parameter.            | <b>value</b> is empty.                                             | Set the parameter by following the instructions in this guide. |
|           | 400 | ELB. 9805 | RequestBody rule[value]'s length is %, greater than 128.                  | The parameter value contains more than 128 characters.             | Set the parameter by following the instructions in this guide. |
| Whitelist | 400 | ELB. 9807 | Quota exceeded for resources: ['whitelist'].                              | The whitelist quota has been used up.                              | To expand the quota, contact customer service.                 |
|           | 400 | ELB. 0002 | whitelist is null,request is invalid.                                     | The request body is empty.                                         | Set the parameter by following the instructions in this guide. |
|           | 400 | ELB. 9805 | RequestBody whitelist[listener_id] is null, this is a required parameter. | <b>listener_id</b> is empty.                                       | Set the parameter by following the instructions in this guide. |
|           | 400 | ELB. 9805 | RequestBody whitelist[listener_id]'s length is %, greater than 255.       | The value of <b>listener_id</b> contains more than 255 characters. | Set the parameter by following the instructions in this guide. |
| Tag       | 400 | ELB. 0002 | RequestBody is null or empty.                                             | Invalid request body.                                              | Set parameters by following the instructions in this guide.    |
|           | 401 | ELB. 1102 | Token is error, Authentication required.                                  | Invalid token.                                                     | Use a correct token that has not expired.                      |
|           | 400 | ELB. 0002 | LogTankRequest Body is null, request is invalid.                          | Invalid request body.                                              | Set parameters by following the instructions in this guide.    |



|             |     |           |                                                                                                       |                                                                  |                                                                  |
|-------------|-----|-----------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
|             |     |           | LoadbalancerId in requestBody is null.                                                                | <b>loadbalancer_id</b> in the request body is empty.             | Set the parameter by following the instructions in this guide.   |
|             |     |           | LoggroupId in requestBody is null.                                                                    | <b>log_group_id</b> in the request body is empty.                | Set the parameter by following the instructions in this guide.   |
|             |     |           | LogtopicId in requestBody is null.                                                                    | <b>log_topic_id</b> in the request body is empty.                | Set the parameter by following the instructions in this guide.   |
|             | 403 | ELB. 9802 | Policy doesn't allow elb:logtanks:create to be performed.                                             | Permission verification failed.                                  | Check whether you have the permission to perform this operation. |
|             | 403 | ELB. 9803 | Policy doesn't allow elb:loadbalancers:list to be performed. etc.                                     | Permission verification failed.                                  | Check whether you have the permission to perform this operation. |
|             | 403 | ELB. 9804 | Policy doesn't allow elb:loadbalancers:list to be performed. etc.                                     | Permission verification failed.                                  | Check whether you have the permission to perform this operation. |
|             | 400 | ELB. 9899 | The default_tls_container_ref field of the TERMINATED_HTTPS listener does not allow updating to null. | Parameter <b>default_tls_container_ref</b> cannot be left blank. | Rectify the fault based on the error information.                |
| Certificate | 400 | ELB. 1001 | Request parameters invalid.                                                                           | Invalid parameter.                                               | Enter a valid parameter.                                         |

|  |     |              |                                                    |                                                          |                                                                  |
|--|-----|--------------|----------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------------|
|  | 400 | ELB.<br>5010 | The certificate URL contains more than four parts. | The certificate URL contains more than four parts.       | Enter a valid certificate URL.                                   |
|  | 400 | ELB.<br>5020 | The certificate ID must be 32 characters.          | The certificate ID is not a 32-character string.         | Enter a valid certificate ID.                                    |
|  | 400 | ELB.<br>5030 | Incorrect certificate URL.                         | Incorrect certificate URL.                               | Enter a valid certificate URL.                                   |
|  | 404 | ELB.<br>5040 | The certificate does not exist.                    | The certificate does not exist.                          | Ensure that the certificate exists.                              |
|  | 400 | ELB.<br>5131 | Failed to query the certificate quota.             | Failed to query the certificate quota.                   | Contact customer service.                                        |
|  | 400 | ELB.<br>5141 | Failed to query the user certificate quota.        | Failed to query the used certificate quota.              | Contact customer service.                                        |
|  | 400 | ELB.<br>5151 | The certificate quantity exceeds the quota.        | The quantity of certificates exceeds the quota.          | Ensure that the quantity of certificates is less than the quota. |
|  | 400 | ELB.<br>1011 | 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.<br>5051 | CA certificate content is not valid.               | Invalid CA certificate content.                          | Enter valid certificate content.                                 |
|  | 400 | ELB.<br>5002 | Failed to delete the certificate.                  | Failed to delete the certificate.                        | Contact customer service.                                        |
|  | 400 | ELB.<br>5033 | Failed to update certificate.                      | Failed to modify the certificate.                        | Contact customer service.                                        |

|             |     |              |                                                  |                                                          |                                             |
|-------------|-----|--------------|--------------------------------------------------|----------------------------------------------------------|---------------------------------------------|
|             | 400 | ELB.<br>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.<br>5053 | CA certificate content is not valid.             | Invalid CA certificate content.                          | Enter valid certificate content.            |
|             | 400 | ELB.<br>5004 | Invalid search criteria.                         | Invalid query condition.                                 | Ensure that the query condition is correct. |
| API version | 404 | ELB.<br>1110 | version not found.                               | The API version does not exist.                          | Contact customer service.                   |

# 8 Appendix

## 8.1 Monitoring Metrics

### Overview

This section describes the metrics that can be monitored by Cloud Eye as well as their namespaces and dimensions. You can use APIs provided by Cloud Eye to query the metrics of a monitored object and the generated alarms.

### Namespace

SYS.ELB

### Metrics

| Metric ID | Name                   | Description                                                                                       | Value | Monitored Object          | Monitoring Period (Raw Data) |
|-----------|------------------------|---------------------------------------------------------------------------------------------------|-------|---------------------------|------------------------------|
| m1_cps    | Concurrent Connections | Number of TCP and UDP connections between the monitored object and backend servers<br>Unit: Count | ≥ 1   | Load balancer or listener | 1 minute                     |

| Metric ID     | Name                 | Description                                                                                                                                                                                                                                                  | Value | Monitored Object | Monitoring Period (Raw Data) |
|---------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------|------------------------------|
| m2_act_conn   | Active Connections   | Number of TCP and UDP connections in the <b>ESTABLISHED</b> state between the monitored object and backend servers<br><br>You can run the following command to view the connections (both Windows and Linux servers):<br>netstat -an<br><br>Unit: Count      | ≥ 1   |                  |                              |
| 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: Count | ≥ 1   |                  |                              |
| m4_ncps       | New Connections      | Number of TCP and UDP connections established between clients and the monitored object per second<br><br>Unit: Count                                                                                                                                         | ≥ 1/s |                  |                              |
| m5_in_pps     | Incoming Packets     | Number of packets received by the monitored object per second<br><br>Unit: Packet/s                                                                                                                                                                          | ≥ 1/s |                  |                              |
| m6_out_pps    | Outgoing Packets     | Number of packets sent from the monitored object per second<br><br>Unit: Packet/s                                                                                                                                                                            | ≥ 1/s |                  |                              |

| Metric ID                           | Name               | Description                                                                                                                                               | Value      | Monitored Object          | Monitoring Period (Raw Data) |
|-------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------|------------------------------|
| m7_in_Bps                           | Inbound Rate       | Traffic used for accessing the monitored object from the Internet<br>Unit: byte/s                                                                         | ≥ 1 byte/s |                           |                              |
| m8_out_Bps                          | Outbound Rate      | Traffic used by the monitored object to access the Internet<br>Unit: byte/s                                                                               | ≥ 1 byte/s |                           |                              |
| m9_abnormal_servers                 | Unhealthy Servers  | Number of unhealthy backend servers associated with the monitored object<br>Unit: Count                                                                   | ≥ 1        | Load balancer             | 1 minute                     |
| ma_normal_servers                   | Healthy Servers    | Number of healthy backend servers associated with the monitored object<br>Unit: Count                                                                     | ≥ 1        |                           |                              |
| <b>Layer 7 (HTTP/HTTPS) metrics</b> |                    |                                                                                                                                                           |            |                           |                              |
| mb_l7_queries                       | Layer-7 Query Rate | Number of requests the monitored object receives per second (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Query/s | ≥ 1/s      | Load balancer or listener | 1 minute                     |
| mc_l7_http_2xx                      | 2xx Status Codes   | 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 | ≥ 1/s      |                           |                              |

| Metric ID                | Name               | Description                                                                                                                                                                                      | Value      | Monitored Object | Monitoring Period (Raw Data) |
|--------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------|------------------------------|
| md_l7_http_3xx           | 3xx Status Codes   | 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                                        | $\geq 1/s$ |                  |                              |
| me_l7_http_4xx           | 4xx Status Codes   | Number of 4xx status codes returned by the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s                                        | $\geq 1/s$ |                  |                              |
| mf_l7_http_5xx           | 5xx Status Codes   | Number of 5xx status codes returned by the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s                                        | $\geq 1/s$ |                  |                              |
| m10_l7_http_other_status | Other Status Codes | Number of status codes returned by the monitored object except 2xx, 3xx, 4xx, and 5xx status codes (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s | $\geq 1/s$ |                  |                              |
| m11_l7_http_404          | 404 Not Found      | Number of 404 Not Found status codes returned by the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s                              | $\geq 1/s$ |                  |                              |

| Metric ID       | Name                          | Description                                                                                                                                                                                                                                                                            | Value       | Monitored Object | Monitoring Period (Raw Data) |
|-----------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------|------------------------------|
| m12_l7_http_499 | 499 Client Closed Request     | Number of 499 Client Closed Request status codes returned by the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s                                                                                                        | $\geq 1/s$  |                  |                              |
| m13_l7_http_502 | 502 Bad Gateway               | Number of 502 Bad Gateway status codes returned by the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<br>Unit: Count/s                                                                                                                  | $\geq 1/s$  |                  |                              |
| m14_l7_rt       | Average Layer-7 Response Time | Average response time of the monitored object (This metric is available only when the frontend protocol is HTTP or HTTPS.)<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>Unit: ms | $\geq 1$ ms |                  |                              |

**a:** If a service has multiple dimensions, all dimensions are mandatory 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,3baa7335-8886-4867-8481-7cbba967a917`
- 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": "3baa7335-8886-4867-8481-7cbba967a917"
 }
],

```

## Dimension

| Key               | Value                           |
|-------------------|---------------------------------|
| lbaas_instance_id | Specifies the load balancer ID. |
| lbaas_listener_id | Specifies the listener ID.      |

## 8.2 General Information About Load Balancers

The following information applies only to load balancers.

### 8.2.1 Querying Data in Pages

APIs v2.0 allow users to query data in pages by adding the `limit` and `marker` parameters to the URL of the list request. The query results are displayed in the ascending order of IDs.

- **next ref** in the response indicates the URL of the next page.
- **previous ref** in the response indicates the URL of the previous page.

## Request

**Table 8-1** Parameter description

| Parameter    | Type   | Mandatory | Description                                                                                                                  |
|--------------|--------|-----------|------------------------------------------------------------------------------------------------------------------------------|
| limit        | int    | No        | Specifies the number of records on each page.                                                                                |
| marker       | String | No        | Specifies the resource ID of pagination query. If the parameter is left blank, only resources on the first page are queried. |
| page_reverse | Bool   | No        | Specifies the paging sequence. The value can be <b>true</b> or <b>false</b> .                                                |

## Response

None

## Example

- Example request

```
GET /v2.0/networks?limit=2&marker=3d42a0d4-a980-4613-ae76-a2cddecff054&page_reverse=False
```

- Example response

```
{
 "networks": [
 {
 "status": "ACTIVE",
 "subnets": [],
 "name": "liudongtest ",
 "admin_state_up": false,
 "tenant_id": "6fbe9263116a4b68818cf1edce16bc4f",
 "id": "60c809cb-6731-45d0-ace8-3bf5626421a9"
 },
 {
 "status": "ACTIVE",
 "subnets": [
 "132dc12d-c02a-4c90-9cd5-c31669aace04"
],
 "name": "publicnet",
 "admin_state_up": true,
 "tenant_id": "6fbe9263116a4b68818cf1edce16bc4f",
 "id": "9daeac7c-a98f-430f-8e38-67f9c044e299"
 }
],
 "networks_links": [
 {
 "href": "http://192.168.82.231:9696/v2.0/networks?limit=2&marker=9daeac7c-a98f-430f-8e38-67f9c044e299",
 "rel": "next"
 },
 {
 "href": "http://192.168.82.231:9696/v2.0/networks?limit=2&marker=60c809cb-6731-45d0-ace8-3bf5626421a9&page_reverse=True",
 "rel": "previous"
 }
]
}
```

## 8.2.2 Sequencing Query Results

APIs v2.0 enable the system to sort queried results based on customized keys by adding the **sort\_key** and **sort\_dir** parameters to the URL of the list request. **sort\_key** specifies the parameter used for sequencing results, and **sort\_dir** specifies whether results are displayed in ascending or descending order. These APIs allow sorting query results by multiple criteria. The number of **sort\_key** parameters must be equal to that of **sort\_dir** parameters. Otherwise, 400 status code is returned.

### Example Request

```
GET /v2.0/networks?sort_key=name&sort_dir=asc&sort_key=status&sort_dir=desc
```

### Example Response

```
{
 "networks": [
 {
 "status": "ACTIVE",
 "subnets": [],
 "name": "liudongtest ",
 "admin_state_up": false,
```

```
 "tenant_id": "6f9263116a4b68818cf1edce16bc4f",
 "id": "60c809cb-6731-45d0-ace8-3bf5626421a9"
 },
 {
 "status": "ACTIVE",
 "subnets": [
 "132dc12d-c02a-4c90-9cd5-c31669aace04"
],
 "name": "publicnet",
 "admin_state_up": true,
 "tenant_id": "6f9263116a4b68818cf1edce16bc4f",
 "id": "9daeac7c-a98f-430f-8e38-67f9c044e299"
 },
 {
 "status": "ACTIVE",
 "subnets": [
 "e25189a8-54df-4948-9396-d8291ffc92a0"
],
 "name": "testnet01",
 "admin_state_up": true,
 "tenant_id": "6f9263116a4b68818cf1edce16bc4f",
 "id": "3d42a0d4-a980-4613-ae76-a2cddecff054"
 }
]
}
```

## 8.2.3 Querying Versions

### Function

Queries all available versions.

If there is no version added to the URL, all available versions are returned.

### URI

GET /

### Request

None

### Response

None

### Example

- Example request

```
GET /
```

- Example response

```
{
 "versions": [
 {
 "status": "CURRENT",
 "id": "v2.0",
 "links": [
 {
 "href": "http://192.168.82.231:9696/v2.0",
 "rel": "self"
 }
]
 }
]
}
```



```
{
 "domain_id": "65382450e8f64ac0870cd180d14e684b",
 "is_domain": false,
 "parent_id": "65382450e8f64ac0870cd180d14e684b",
 "name": "project_name",
 "description": "",
 "links": {
 "next": null,
 "previous": null,
 "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
 },
 "id": "a4a5d4098fb4474fa22cd05f897d6b99",
 "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 **My Credentials** page, view the project ID in the project list.

---

# 9 Change History

---

| Released On | Description                               |
|-------------|-------------------------------------------|
| 2020-07-30  | This issue is the first official release. |