# Alibaba Cloud **Cloud Enterprise Network**

**User Guide** 

# Legal disclaimer

Alibaba Cloud reminds you to carefully read and fully understand the terms and conditions of this legal disclaimer before you read or use this document. If you have read or used this document, it shall be deemed as your total acceptance of this legal disclaimer.

- 1. You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloud-authorized channels, and use this document for your own legal business activities only. The content of this document is considered confidential information of Alibaba Cloud. You shall strictly abide by the confidentiality obligations. No part of this document shall be disclosed or provided to any third party for use without the prior written consent of Alibaba Cloud.
- 2. No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company, or individual in any form or by any means without the prior written consent of Alibaba Cloud.
- 3. The content of this document may be changed due to product version upgrades , adjustments, or other reasons. Alibaba Cloud reserves the right to modify the content of this document without notice and the updated versions of this document will be occasionally released through Alibaba Cloud-authorized channels. You shall pay attention to the version changes of this document as they occur and download and obtain the most up-to-date version of this document from Alibaba Cloud-authorized channels.
- 4. This document serves only as a reference guide for your use of Alibaba Cloud products and services. Alibaba Cloud provides the document in the context that Alibaba Cloud products and services are provided on an "as is", "with all faults "and "as available" basis. Alibaba Cloud makes every effort to provide relevant operational guidance based on existing technologies. However, Alibaba Cloud hereby makes a clear statement that it in no way guarantees the accuracy, integrity , applicability, and reliability of the content of this document, either explicitly or implicitly. Alibaba Cloud shall not bear any liability for any errors or financial losses incurred by any organizations, companies, or individuals arising from their download, use, or trust in this document. Alibaba Cloud shall not, under any circumstances, bear responsibility for any indirect, consequential, exemplary, incidental, special, or punitive damages, including lost profits arising from the use

- or trust in this document, even if Alibaba Cloud has been notified of the possibility of such a loss.
- 5. By law, all the content of the Alibaba Cloud website, including but not limited to works, products, images, archives, information, materials, website architecture, website graphic layout, and webpage design, are intellectual property of Alibaba Cloud and/or its affiliates. This intellectual property includes, but is not limited to, trademark rights, patent rights, copyrights, and trade secrets. No part of the Alibaba Cloud website, product programs, or content shall be used, modified , reproduced, publicly transmitted, changed, disseminated, distributed, or published without the prior written consent of Alibaba Cloud and/or its affiliates . The names owned by Alibaba Cloud shall not be used, published, or reproduced for marketing, advertising, promotion, or other purposes without the prior written consent of Alibaba Cloud. The names owned by Alibaba Cloud include, but are not limited to, "Alibaba Cloud", "Aliyun", "HiChina", and other brands of Alibaba Cloud and/or its affiliates, which appear separately or in combination, as well as the auxiliary signs and patterns of the preceding brands, or anything similar to the company names, trade names, trademarks, product or service names, domain names, patterns, logos, marks, signs, or special descriptions that third parties identify as Alibaba Cloud and/or its affiliates).
- 6. Please contact Alibaba Cloud directly if you discover any errors in this document.

II Issue: 20190715

# **Generic conventions**

Table -1: Style conventions

Style	Description	Example	
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	Danger: Resetting will result in the loss of user configuration data.	
<b>A</b>	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	Warning: Restarting will cause business interruption. About 10 minutes are required to restore business.	
	This indicates warning informatio n, supplementary instructions, and other content that the user must understand.	Notice: Take the necessary precautions to save exported data containing sensitive information.	
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	Note: You can use Ctrl + A to select all files.	
>	Multi-level menu cascade.	Settings > Network > Set network type	
Bold	It is used for buttons, menus , page names, and other UI elements.	Click OK.	
Courier font	It is used for commands.	Run the cd / d C : / windows command to enter the Windows system folder.	
Italics	It is used for parameters and variables.	bae log list instanceid <i>Instance_ID</i>	
[] or [a b]	It indicates that it is a optional value, and only one item can be selected.	ipconfig [-all -t]	

Style	Description	Example
	It indicates that it is a required value, and only one item can be selected.	swich {stand   slave}

II Issue: 20190715

# Contents

Legal disclaimer	I
Generic conventions	I
1 CEN instances	1
2 Networks	3
3 Attach a network in a different account	6
4 Cross-region interconnection bandwidth	7
5 Bandwidth package	
5.1 Manage bandwidth packages	
6 Health check	12
7 Manage routes	13
7.1 Enable overlapping routing	
7.2 Manage network routes	
8 Manage quotas	19

## 1 CEN instances

After creating a CEN instance, you can attach networks to the CEN instance, buy bandwidth packages and set the cross-region interconnection bandwidth if required, thereby rapidly building a secure, reliable, and enterprise-class global network.

#### Create a CEN instance

To create a CEN instance, complete these steps:

- 1. Log on to the CEN console.
- 2. On the Instances page, click Create CEN instance.
- 3. Configure the CEN instance according to the following information:

Configuration	Description	
Name	Enter the name of the CEN instance.	
	The name can be 2-128 characters in length. It can	
	start with an uppercase letter, lowercase letter,	
	or Chinese character. It can contain numbers,	
	underscores (_), and hyphens (-), but cannot start	
	with http://or https://.	
Description	Enter the description of the CEN instance.	
	The description can contain from 2 to 256 characters	
	and cannot begin with http://or https://.	
Attach networks	You can attach networks of your account or other accounts to a CEN instance. For more information, see Networks.	

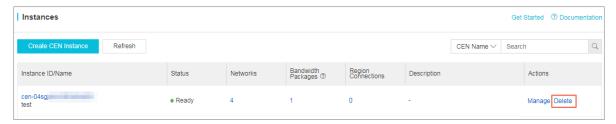
#### Delete a CEN instance

Before deleting a CEN instance, make sure there is no bandwidth package or network under the instance.

To create a CEN instance, complete these steps:

1. Log on to the CEN console.

2. Click Delete in the Actions column of the target CEN instance.



3. In the displayed dialog box, click OK.

## 2 Networks

After you create a CEN instance, you must add networks to communicate with one another to the CEN instance. Currently you can add VPCs, VBRs and CCNs to a CEN instance.

#### Attach networks

You can attach networks in the same account or a different to a CEN instance. To attach a network in a different account, authorization is required.

#### Attach a network in the same account

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. Click Attach Network.
- 4. Choose Your Account, and configure the network according to the following information.

Configuration	Description	
Network Type	<ul> <li>Select the type of the network to attach:</li> <li>VPC: Attach a VPC.</li> <li>Virtual Border Router (VBR): Attach a local data center associated with the VBR.</li> <li>CloudConnectNetwork (CCN): Attach a local branch added to the CCN.</li> </ul>	
Region	Select the region of the network.	
Networks	Select the network.	
	Note: You cannot select a network already attached to a CEN instance or a network connected using Express Connect.	

5. Click OK.

Issue: 20190715 3

#### Attach a network in a different account

Before attaching a network in a different account, you must authorize the CEN instance in the network. For more information, see Cross-account network authorization.

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. Click Attach Network.
- 4. Choose Different Account, and configure the network according to the following information.

Configuration	Description	
Owner Account	Enter the ID of the account that owns the network to attach.	
Network Type	Select the type of the network to attach.	
Region	Select the region of the authorized network.	
Networks Enter the ID of the network to attach.		

5. Click OK.

#### Cross-account network authorization

To attach a network belonging to a different account, you must authorize the CEN instance in the network.

#### Cross-account authorization for VPC

- 1. Use the account of the target VPC to log on to the VPC console.
- 2. In the left-side navigation pane, click VPC.
- 3. Click the ID of the target VPC, and then click CEN Cross Account Authorization in the CEN cross account authorization information area.
- 4. In the displayed dialog box, enter the peer account UID and peer account CEN ID.
- 5. Click OK.

#### Cross-account authorization for VBR

- 1. Use the account of the target VBR to log on to the Express Connect console.
- 2. In the left-side navigation pane, click Physical Connection > Virtual Border Router.
- 3. Click the ID of the VBR to attach, and then click CEN Cross Account Authorization in the CEN cross account authorization information area.

- 4. In the displayed dialog box, enter the peer account UID and peer account CEN ID.
- 5. Click Submit.

#### Rapidly join in a CEN instance

On the VPC Details or VBR Details page, you can rapidly join in a CEN instance of your account.

- On the VPC Details page, click Attach to CEN, and then select the created CEN instance. Click OK.
- · On the VBR Details page, click Attach to CEN, and then select the created CEN instance. Click OK.

#### Detach a network

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. Click Detach in the Actions column of the target network.
- 4. In the displayed dialog box, click OK.

Issue: 20190715 5

## 3 Attach a network in a different account

To attach a network belonging to a different account, you must get authorized.

#### Cross-account authorization for VPC

- 1. Use the account of the target VPC to log on to the VPC console.
- 2. In the left-side navigation pane, click VPC.
- 3. Click the ID of the target VPC, and then click CEN Cross Account Authorization in the CEN cross account authorization information area.
- 4. In the displayed dialog box, enter the ID of the account and the CEN instance to authorize, and then click OK.

#### Cross-account authorization for VBR

- 1. Use the account of the target VBR to log on to the Express Connect console.
- 2. In the left-side navigation pane, click Physical Connection > Virtual Border Router.
- 3. Click the ID of the VBR to attach, and then click CEN Cross Account Authorization in the CEN cross account authorization information area.
- 4. In the displayed dialog box, enter the ID of the account and the CEN instance to authorize, and then click OK.

# 4 Cross-region interconnection bandwidth

To connect networks in different regions, you must set cross-region interconnection bandwidth after buying a bandwidth package. The total bandwidth set for all the interconnected regions of a bandwidth package cannot exceed the bandwidth of the bandwidth package. By default, 1 Kbps bandwidth is provided for connectivity test. To run normal business, you must buy a bandwidth package and set a proper interconnection bandwidth.

For example, a CEN instance is bound to a bandwidth package of 20 Mbps and the interconnection areas are Mainland China and North America. You can set the cross-region interconnection bandwidth between US West 1 and China East 1, China East 2, China South 1, and so on. However, the total bandwidth set for all the interconnected regions cannot exceed 20 Mbps.

#### Set a cross-region interconnection bandwidth

- 1. Log on to the CEN console.
- 2. On the Instances page, click the ID of the target instance.
- 3. Click Region Connections, and then click Set Region Connection.
- 4. Configure the cross-region bandwidth, and then click OK.

Configuration	Description
Bandwidth package	Select the bandwidth package bound to the CEN instance.
<b>Connected Regions</b>	Select the regions to connect.
Bandwidth	Enter the bandwidth.

#### Modify cross-region interconnection bandwidth

- 1. Log on to the CEN console.
- 2. On the Instances page, click the ID of the target instance.
- 3. Click Region Connections, and then click Modify in the Bandwidth column of the target cross-region interconnection bandwidth.

Issue: 20190715 7

4. In the dialog box, click OK.



#### Delete a cross-region interconnection bandwidth

- 1. Log on to the CEN console.
- 2. On the Instances page, click the ID of the target instance.
- 3. Click Region Connections, and then click Delete in the Bandwidth column of the target cross-region interconnection bandwidth.
- 4. The displayed dialog box, click OK.

# 5 Bandwidth package

### 5.1 Manage bandwidth packages

To connect networks in different regions, you must buy a bandwidth package and set a cross-region bandwidth value.

#### What is a bandwidth package?

A Cloud Enterprise Network (CEN) bandwidth package is an abstracted object that includes an interconnection bandwidth and interconnection areas. To buy a bandwidth package, you must specify the areas to connect. An area consists of one or more Alibaba Cloud regions.

The relationship between an area and a region is shown in the following table:

Area	Included regions	
Mainland China	China (Qingdao), China (Beijing), China (Zhangjiakou), China (Shenzhen), China (Hangzhou), China (Shanghai ), China (Hohhot)	
North America	US (Silicon Valley), US (Virginia)	
Asia Pacific	Hong Kong, Singapore, Malaysia (Kuala Lumpur), Japan (Tokyo), India (Mumbai), Indonesia (Jakarta)	
Europe	Germany (Frankfurt), UK (London)	
Australia	Australia (Sydney)	

#### Buy a bandwidth package

To connect networks in different regions, you must buy a bandwidth package and set a cross-region bandwidth value. Connecting networks in the same region does not require a bandwidth package.



Note:

To delete a bandwidth package, you must open a ticket.

To buy a bandwidth package, follow these steps:

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.

- 3. On the CEN page, click the Bandwidth Packages tab and then click Buy Bandwidth Package (Subscription).
- 4. Configure the bandwidth package according to the following information:

Configuration	Description	
Cloud Enterprise Network	Select the CEN instance that requires a bandwidth package.	
Area	Select the area to connect.	
Area	Select the area to connect.	
Bandwidth	Set a bandwidth value for the bandwidth package.	
	Note: You cannot modify the interconnected areas after the bandwidth package is purchased.	
Name	Enter a name for the bandwidth package.	
Duration	Select a validity period for your Subscription.	

#### Disassociate a bandwidth package

You can disassociate a bandwidth package from a CEN instance and associate this bandwidth package with other CEN instances.



#### **Notice:**

- · Before you disassociate a bandwidth package, delete region connections using the bandwidth package.
- The bandwidth package is still charged after it is disassociated from a CEN instance. To delete a bandwidth package, open a ticket.

To disassociate a bandwidth package, follow these steps:

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. On the CEN page, click the Bandwidth Packages tab.
- 4. Find the target bandwidth package and click Unbind in the Actions column.
- 5. In the displayed dialog box, click OK.

#### Associate a bandwidth package

You can associate a disassociated bandwidth package to another CEN instance.

To associate a bandwidth package, follow these steps:

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. On the CEN page, click the Bandwidth Packages tab.
- 4. Find the target bandwidth package and click Bind in the Actions column.
- 5. In the displayed dialog box, click OK.

#### Modify the bandwidth

You can change the bandwidth value of a bandwidth package at any time, and the change takes effect immediately.

To modify the bandwidth, follow these steps:

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. On the CEN page, click the Bandwidth Packages tab.
- 4. Find the target bandwidth package and click Downgrade or Upgrade in the Bandwidth column.



#### Note:

- · Cross-border bandwidth packages (from Mainland China to areas outside Mainland China) do not support bandwidth downgrades.
- 5. In the Configuration Upgrade section, modify the bandwidth, click Pay, and complete the payment.

#### Renew a bandwidth package

To renew a bandwidth package, follow these steps:

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. On the CEN page, click the Bandwidth Packages tab.
- 4. Find the target bandwidth package and click Renew in the Actions column.
- 5. Select the renewal duration and complete the payment.

#### References

What is Cloud Enterprise Network?

### 6 Health check

CEN provides the health check function so that you can monitor the network conditions of local data centers connected to the attached VBRs.

#### Configure health check

To configure the health check, complete these steps:

- 1. Log on to the CEN console.
- 2. In the left-side navigation pane, click Health Check.
- 3. Select the region of the CEN instance and click Add Health Check.
- 4. On the displayed page, configure the following:

Configuration	Description
Instances	Select the CEN instance associated with the VBR.
Virtual Border Router (VBR)	Select the VBR to monitor.
Source IP	Any unused IP address in the VPC attached to the CEN instance.
Target IP	The IP address of the customer premises equipment connected to the VBR.

#### View monitoring data

To view the monitoring data after configuring the health check, complete these steps:

- 1. Log on to the CEN console.
- 2. In the left-side navigation pane, click Health Check.
- 3. Click the monitoring icon to view the monitoring data.
  - Outbound bandwidth: The bandwidth of data transmission from Alibaba Cloud to the local data center.
  - · Inbound bandwidth: The bandwidth of data transmission from the local data center to the Alibaba Cloud.
  - · Packet loss: The loss rate of data transmitted between the Alibaba Cloud and the local data center.

# 7 Manage routes

### 7.1 Enable overlapping routing

Cloud Enterprise Network (CEN) automatically learns routes from attached networks. If two routes overlap, the conflicted routes will be denied. With overlapping routing enabled, CEN can learn overlapping routes that have same prefix but different netwasks.

#### **Enable overlapping routing**

For example, VPC-A is already attached to a CEN instance. A custom route entry with the destination CIDR block of 192.168.1.0/24 and next hop of an ECS instance is added to the VPC-A. By default, all learned the routes of IP address 192.168.1.0/x (1 <=x <=32) published by other networks will be denied by CEN.

Similarly, if VPC-A has a route entry destined to 192.168.1.0/24 that is learned from CEN, you are not allowed to add a custom rout entry with the destination CIDR block 192.168.1.0/x (1<=x<=32), and all the routes with the destination CIDR block 192.168.1 .0/x (1<=x<=32) will be denied by VPC-A.

#### After overlapping routing is enabled

With overlapping routing enabled, CEN can learn overlapping routes that have same prefix but different netmasks.

For example, VPC-A is already attached to a CEN instance. A custom route entry with the destination CIDR block of 192.168.1.0/24 and next hop of an ECS instance is added to the VPC-A. After overlapping routing is enabled, VPC-A can learn the route entry with the destination CIDR block 192.168.0.0/16 published by other networks in the CEN instance.

At the same time, the route entry with the CIDR block 168.1.0/24 and 192.168.0.0/16 can also be learned by CEN. CEN uses the longest prefix match algorithm to route traffic.

#### Exception

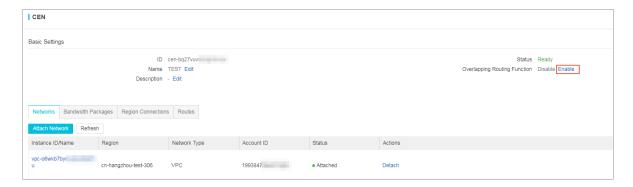
After this function is enabled, VPC will not accept routes that are subsets of a VSwitch . For example, the CIDR block of a VSwitch is 10.0.0.0/16, then the VPC that the

VSwitch is located will not accept the route with the CIDR block 10.0.0.0/24 but will accept the route with the CIDR block 10.0.0/8.

#### **Procedure**

To enable the overlapping routing function, complete these steps:

- 1. Log on to the CEN console.
- 2. Click the ID of the target CEN instance.
- 3. In the Basic Settings area, click Enable next to the Overlapping Routing Function option.





Notice:

Once the overlapping routing function is enabled, it cannot be disabled.

### 7.2 Manage network routes

Cloud Enterprise Network (CEN) supports publishing and withdrawing route entries of attached networks. You can publish a route entry of an attached VPC or VBR to a CEN instance, then other attached networks can learn the route if there is no route conflict. You can withdraw a published route entry when CEN does not need it any more.



Note:

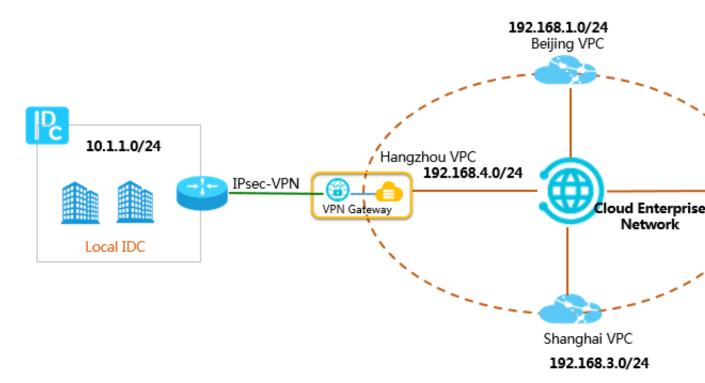
Currently, the console only supports publishing and withdrawing VPC routes and does not support publishing or withdrawing VBR routes. You can publish or withdraw VBR route entries by calling the PublishRouteEntries API.

The following table lists the route entries that can be published to CEN. You can withdraw a route entry that has been published to CEN. Once withdrawn, the route entry does not exist in the CEN instance anymore. If you have published a custom

route entry to a CEN instance and then delete it from the VPC route table, the route entry is also deleted from the CEN instance.

Route entries	Network	Publish to CEN by default
A route entry pointing to an ECS instance	VPC	No
A route entry pointing to a VPN Gateway	VPC	No
A route entry pointing to a HaVip	VPC	No
A VPC system route entry	VPC	Yes
A route entry pointing to a local data center	VBR	Yes
A BGP route entry	VBR	Yes

As shown in the following figure, four VPCs are attached to the CEN instance. The VPC in the Hangzhou region is configured with a VPN Gateway to connect to the local data center. After you publish the router entry pointing to the VPN Gateway in the VPC to the CEN instance, the other three VPCs learn the route and can also communicate with the local data center.



#### Publish a route entry to CEN

To publish a route entry in a VPC to CEN, complete these steps:

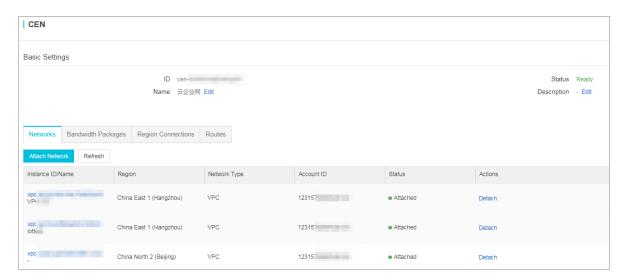
Issue: 20190715 15



Note:

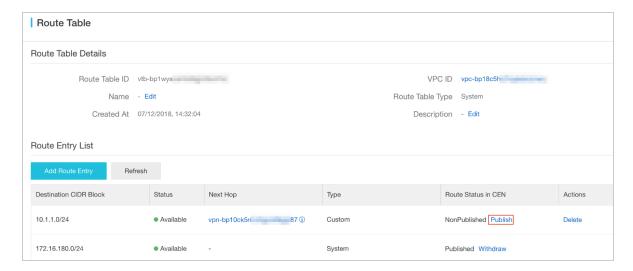
Make sure that the VPC is attached to the CEN.

- 1. Log on to the CEN console.
- 2. On the Instances page, click the ID of the target CEN instance.
- 3. On the Networks page, click the ID of the target VPC.

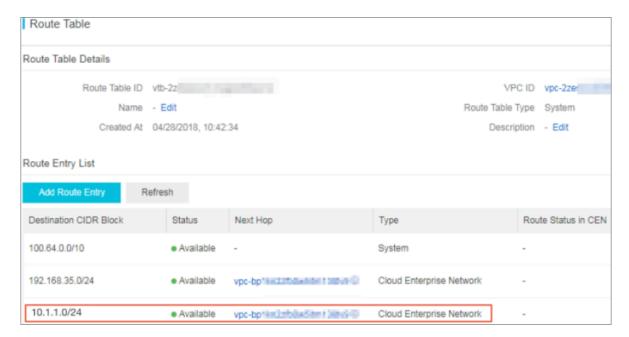


- 4. On the VPC Details page, click the link to the route table.
- 5. On the Route Tables page, click the ID of the route table.

6. Find the target route entry and click Publish.



After the route entry is successfully published, you can view the learned routes in other networks.

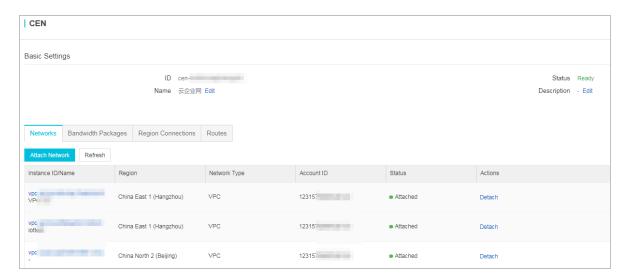


#### Withdraw a route entry from CEN

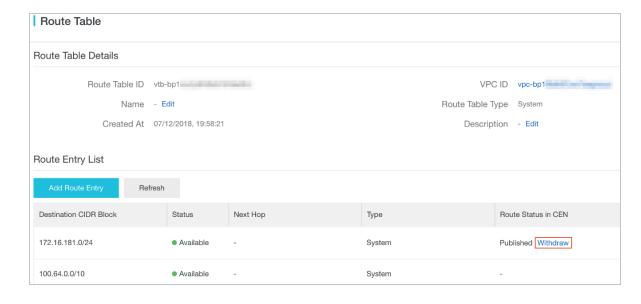
To withdraw a route entry published to CEN, complete these steps:

- 1. Log on to the CEN console.
- 2. On the Instances page, click the ID of the target CEN instance.

3. On the Networks page, click the ID of the target VPC.



- 4. On the VPC Details page, click the link to the route table.
- 5. On the Route Tables page, click the ID of the route table.
- 6. Find the target route entry and click Withdraw. In the displayed dialog box, click OK.



# 8 Manage quotas

You can query the number of remaining resources in your quota through the Cloud Enterprise Network (CEN) console. If the remaining quota number is insufficient for your requirements, you can apply to increase the quota.

#### **Procedure**

- 1. Log on to the CEN console.
- 2. In the left-side navigation pane, click Quota to view the resource usage of the CEN service under your account.
- 3. To increase your resource quota, click Apply in the Actions column. Then, enter the following information:
  - Quantity for Application: the number of resources you require. You must enter a number that is greater than the current quota. For more information about the resource limits of CEN, see Limits.
  - · Reason for Application: your reason for applying for an increase to your quota. We recommend that you include details about your specific scenario.
  - Mobile/Landline Phone Number: the mobile or landline phone number of the person to contact.
  - Email: the email address of the person to contact.

#### 4. Click OK.

The system then determines whether the quota application is reasonable.

- If the system determines the request is unreasonable, the application enters the Rejected state.
- · If the request is reasonable, the application enters the Approved state, and the quota is automatically upgraded to the applied quota number.

To view a history of quota applications, click Application History in the Application History column.