

# Alibaba Cloud 云企业网

## User Guide

**Issue: 20191113**

## 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, consequent









ial, 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 contents in Alibaba Cloud documents, including but not limited to pictures, architecture design, page layout, and text description, 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 this document 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

.



## Document conventions

Style	Description	Example
	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings > Network > Set network type.
<b>Bold</b>	<b>Bold formatting is used for buttons, menus, page names, and other UI elements.</b>	Click <b>OK</b> .
Courier font	<b>Courier font is used for commands.</b>	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	<b>Italic formatting is used for parameters and variables.</b>	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	<b>This format is used for an optional value, where only one item can be selected.</b>	<code>ipconfig [-all -t]</code>

Style	Description	Example
<b>{ } or {a b}</b>	<b>This format is used for a required value, where only one item can be selected.</b>	switch { <i>active</i>   <i>stand</i> }



# Contents

---

<b>Legal disclaimer</b> .....	<b>I</b>
<b>Document conventions</b> .....	<b>I</b>
<b>1 Manage networks</b> .....	<b>1</b>
1.1 Attach a VPC or VBR to a CEN instance through the instance details page.....	1
1.2 Cross-account authorization.....	1
1.3 Attach networks.....	5
1.4 Detach a network instance from a CEN instance.....	9
<b>2 Bandwidth package management</b> .....	<b>11</b>
2.1 Purchase a bandwidth package.....	11
2.2 Associate a bandwidth package with a CEN instance.....	12
2.3 Disassociate a bandwidth package from a CEN instance.....	13
2.4 Modify the bandwidth of a bandwidth package.....	14
2.5 Renew a Subscription bandwidth package.....	14
<b>3 Manage cross-region connection bandwidth</b> .....	<b>15</b>
3.1 Configure a cross-region connection bandwidth.....	15
3.2 Modify a cross-region connection bandwidth.....	16
3.3 Delete a cross-region connection bandwidth.....	17
<b>4 Manage routes</b> .....	<b>18</b>
4.1 Enable overlapping routing.....	18
4.2 Publish a route to CEN.....	19
4.3 Withdraw a route from CEN.....	21
4.4 View routes.....	22
4.4.1 View CEN routes in the CEN console.....	22
4.4.2 View CEN routes in the VPC route table.....	24
4.4.3 View CEN routes in the VBR route table.....	24
<b>5 Routing policies</b> .....	<b>25</b>
5.1 Route map overview.....	25
5.2 Add a route map.....	37
5.3 Modify a route map.....	40
5.4 Delete a route map.....	41
<b>6 Access to cloud services</b> .....	<b>42</b>
6.1 PrivateZone overview.....	42
6.2 Configure PrivateZone access.....	42
6.3 Grant permissions to CCN.....	44
<b>7 Health check</b> .....	<b>52</b>
7.1 Configure the health check function.....	52
7.2 Delete health check settings.....	52



7.3 Modify health check settings.....	53
<b>8 Monitoring and alarms.....</b>	<b>54</b>
8.1 View monitoring data.....	54
8.1.1 View the monitoring data of a bandwidth package.....	54
8.1.2 View the monitoring data of a cross-region connection bandwidth.....	54
8.1.3 View the monitoring data of a physical connection.....	55
8.2 CEN alarm rules.....	55
8.2.1 Set an alarm rule for a bandwidth package.....	55
8.2.2 Set an alarm rule for a region connection.....	56
8.2.3 Set an alarm rule for a physical connection.....	57
<b>9 Flow logs.....</b>	<b>59</b>
9.1 Flow log overview.....	59
9.2 Create a flow log.....	62
9.3 View flow logs.....	64
9.4 Start a flow log.....	64
9.5 Stop a flow log.....	64
9.6 Modify a flow log.....	65
9.7 Delete a flow log.....	65
<b>10 Increase the quota of a cloud resource.....</b>	<b>67</b>



# 1 Manage networks

---

## 1.1 Attach a VPC or VBR to a CEN instance through the instance details page

**You can attach a VPC or a Virtual Border Router (VBR) to a Cloud Enterprise Network (CEN) instance of the same account directly from the instance details page.**

Attach a VPC through the details page

**To attach a VPC to a CEN instance through the details page, follow these steps:**

1. Log on to the [VPC console](#).
2. Select the region of the target VPC.
3. On the VPCs page, find the target VPC and click Actions in the Manage column.
4. On the VPC Details page, click Attach to CEN.
5. In the Attach to CEN dialog box, select a CEN instance and click OK.

Attach a VBR through the details page

**To attach a VBR to a CEN instance through the details page, follow these steps.**

1. Log on to the [Express Connect console](#).
2. In the left-side navigation pane, choose Physical Connections > Virtual Border Routers (VBRs).
3. Select the region of the target VBR.
4. On the Virtual Border Routers (VBRs) page, find the target VBR and click the VBR ID.
5. In the Basic Information section, click Join CEN.
6. In the Join CEN dialog box, select a CEN instance and click OK.

## 1.2 Cross-account authorization

**Before you attach a network of a different account to a Cloud Enterprise Network (CEN) instance, you must obtain permissions from the network. After obtaining**

permissions, you must obtain the ID of the account to which the network belongs and the instance ID of the network.

## Prerequisites

- The ID of the target CEN instance is obtained.
- The ID of the account to which the target CEN instance belongs is obtained.

Obtain permissions from a VPC

To obtain permissions from a VPC, follow these steps:



### Notice:

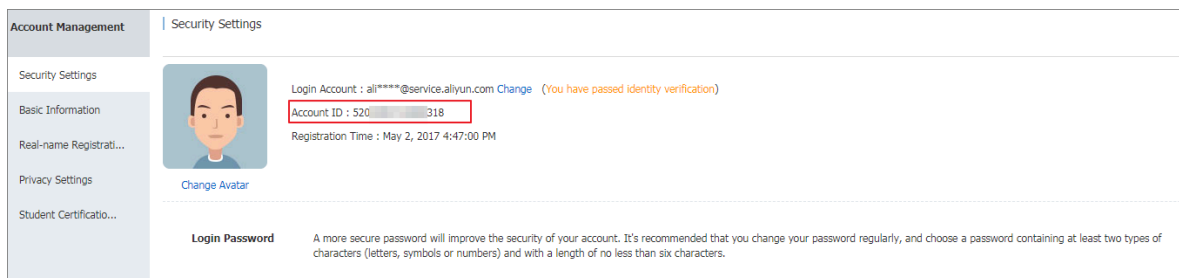
If you grant permissions to another account, this account can attach your networks to its CEN instances and gain access to your networks. Therefore, we recommend that you exercise caution when you grant permissions to other accounts.

1. Log on to the [VPC console](#) by using the credentials of the account to which the target VPC belongs.
2. Select the region of the target VPC.
3. On the VPCs page, find the target VPC, and click Actions in the Manage column.
4. In the CEN cross account authorization information section, click CEN Cross Account Authorization.
5. In the displayed Attach to CEN dialog box, enter the account ID of the target CEN instance and the ID of the target CEN instance, and then click OK.

The screenshot displays the VPC console interface. The top section shows 'VPC Details' for a VPC named 'VPC\_Rick\_Song'. Below this, the 'VRouter Basic Information' section is visible. The bottom section, titled 'CEN cross account authorization information', contains a table with the following data:

Peer Account UID	Peer Account CEN ID	Authorized At	Actions
1231:9123	cen-7qth:4gsu	08/21/2019, 13:56:00	Unauthorize

6. Record the VPC ID and the account ID of the VPC. You can view the account ID on the [Account Management](#) page.



Obtain permissions from a VBR

**To obtain permissions from a VBR, follow these steps:**

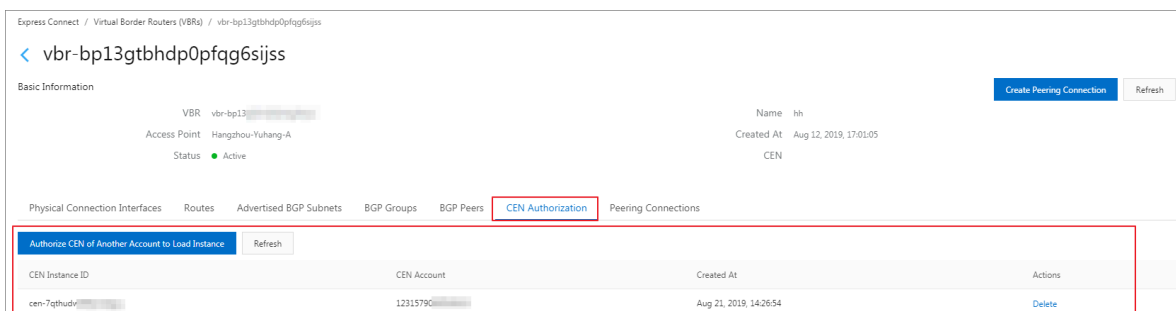


**Notice:**

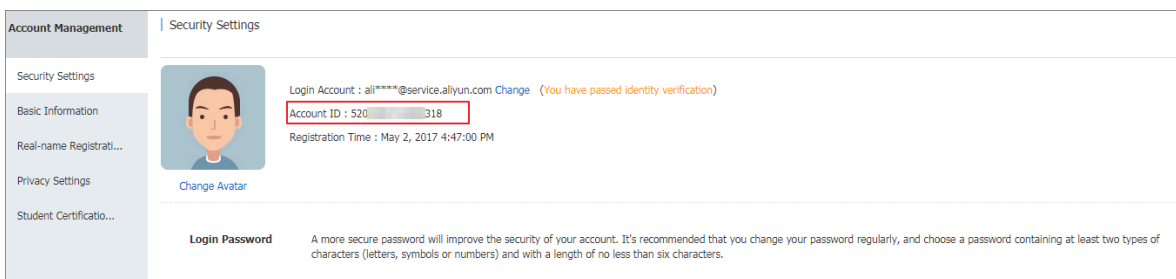
**If you grant permissions to another account, this account can attach your networks to its CEN instances and gain access to your networks. Therefore, we recommend that you exercise caution when you grant permissions to other accounts.**

1. Log on to the [Express Connect console](#) by using the credentials of the account to which the target VBR belongs.
2. In the left-side navigation pane, choose **Physical Connections > Virtual Border Routers (VBRs)**.
3. Select the region of the VBR.
4. On the **Virtual Border Routers (VBRs)** page, find the target VBR and click the VBR ID.
5. Click the CEN authorization tab, and then click **Authorize CEN of Another Account to Load Instance**.

6. In the **Authorize CEN of Another Account to Load Instance** dialog box, enter the **ID of the target CEN instance and the account ID of the target CEN instance**, and **click OK**.



7. Record the VBR ID and the account ID of the VBR. You can view the account ID on the [Account Management](#) page.



Obtain permissions from a CCN

To obtain permissions from a CCN, follow these steps:



#### Notice:

If you grant permissions to another account, this account can attach your networks to its CEN instances and gain access to your networks. Therefore, we recommend that you exercise caution when you grant permissions to other accounts.

1. Log on to the [Smart Access Gateway console](#) by using the credentials of the account to which the target CCN belongs.
2. In the left-side navigation pane, click CCN, find the target CCN, and click the instance ID of the CCN.

3. Click **CEN Cross Account Authorization**, enter the account ID of the target CEN instance and the ID of the CEN instance, and click **OK**.

← ccn- [redacted]

Basic Info

Instance ID	ccn-[redacted]	Name	gg <a href="#">Edit</a>
Created At	Mar 27, 2019, 16:28:33	Description	- <a href="#">Edit</a>
Private CIDR Block	10.10.10.0/24 <a href="#">Edit</a>	Interconnection Among SmartAG Instances Bound to the CCN Instance	Enable <a href="#">Disable</a>

Associated SmartAG Instances [SmartAG Instance](#)

Instance ID/Name	Peak Bandwidth	Status	Private CIDR Block	Expires At	Account UID	Actions
No data available.						

CEN Cross Account Authorization Information [CEN Cross Account Authorization](#)

Peer Account UID	Peer Account CEN ID	Authorized At	Actions
34	ee	Aug 8, 2019, 13:35:43	<a href="#">Revoke Authorization</a>

4. Record the CCN instance ID and the account ID of the CCN. You can view the account ID on the [Account Management](#) page.

Account Management | Security Settings

Security Settings

Basic Information

Real-name Registrati...

Privacy Settings

Student Certificatio...

Change Avatar

Login Account : ali\*\*\*\*@service.aliyun.com [Change](#) (You have passed identity verification)

**Account ID : 520[redacted]318**

Registration Time : May 2, 2017 4:47:00 PM

Change Avatar

Login Password

A more secure password will improve the security of your account. It's recommended that you change your password regularly, and choose a password containing at least two types of characters (letters, symbols or numbers) and with a length of no less than six characters.

## What's next

[Attach networks](#)

## 1.3 Attach networks

You can attach the networks (VPCs, VBRs, and CCNs) that need to communicate with each other to a Cloud Enterprise Network (CEN) instance. CEN automatically learns the routes of the attached networks to achieve intranet communication.

### Prerequisites

Before you attach networks, make sure the following conditions are met:

- [#unique\\_7](#).
- The networks to be attached are not attached to other CEN instances.

Attach a network in the same account

**To attach a network in the same account, follow these steps:**

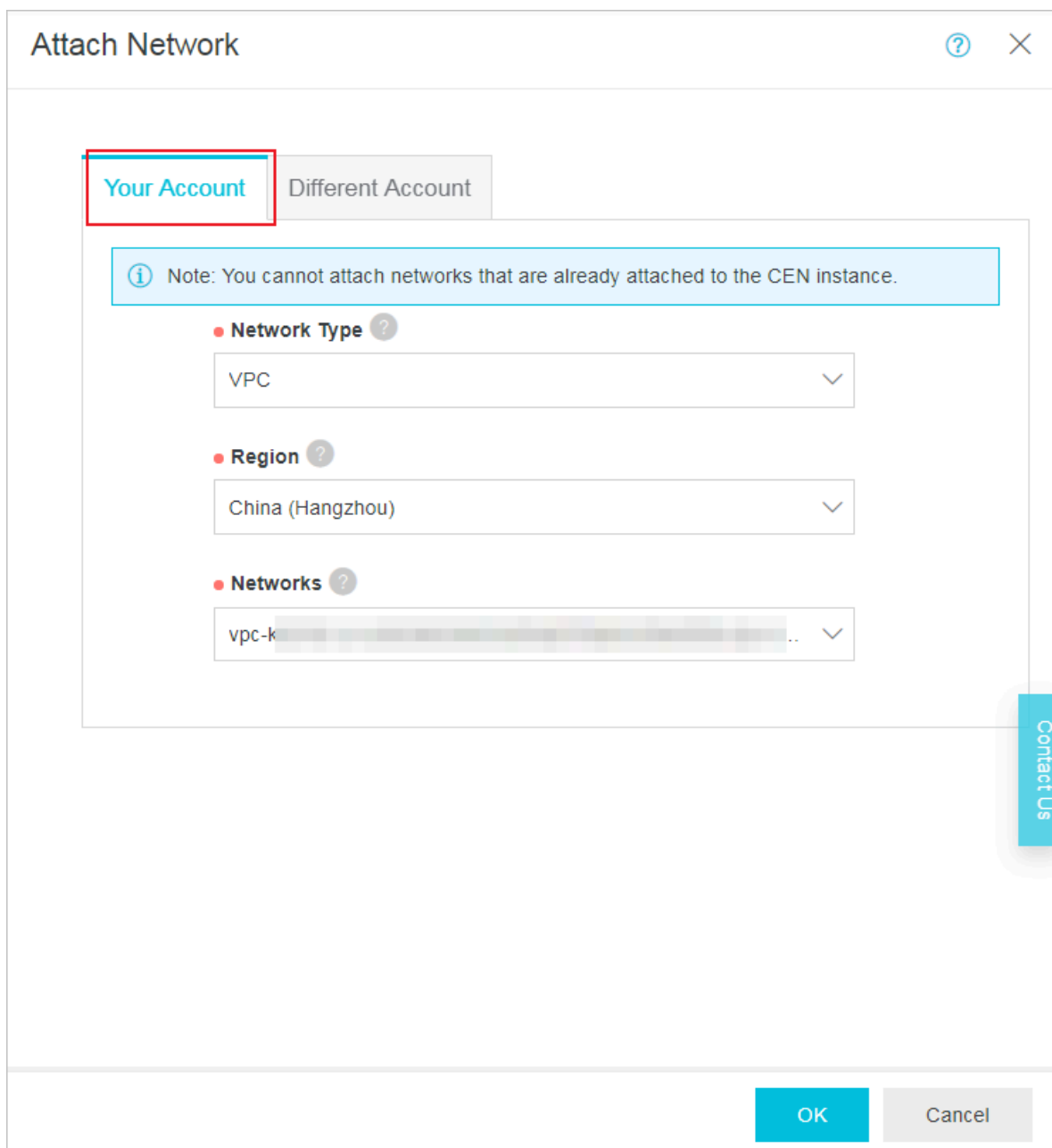
- 1. Log on to the *CEN console*.**
- 2. On the Instances page, find the target CEN instance and click the instance ID.**
- 3. Click the Networks tab and then click Attach Network.**
- 4. Click the Your account tab.**
- 5. Network Type: Select the type of the network to be attached.**

**You can attach VPCs, Virtual Border Routers (VBRs), and Cloud Connect Networks (CCNs).**

- 6. Region: Select the region of the network.**



### 7. Networks: Select the instance to be attached.



### 8. Click OK.

Attach a network in a different account

**Notice:**

**Before you attach a network of a different account, you must obtain permissions from this account. After obtaining permissions, you must obtain the ID of this account and the instance ID of the network.**

**For more information, see:**

- [Obtain permissions from a VPC](#)

- [Obtain permissions from a VBR](#)
- [Obtain permissions from a CCN](#)

To attach a network in a different account, follow these steps:

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click the instance ID.
3. Click the Networks tab and then click Attach Network.
4. Click the Different Account tab.
5. Owner Account: Enter the ID of the account to which the network to be attached belongs.
6. Network Type: Select the type of the network to be attached.  
You can attach VPCs, Virtual Border Routers (VBRs), and Cloud Connect Networks (CCNs).
7. Region: Select the region of the network.

## 8. Networks: Enter the instance ID of the network to be attached.

Attach Network

Your Account Different Account

Note: Go to the VPC console, in the properties page of the VPC or virtual border router, authorize the related CEN instance to attach that network. Networks already attached to the CEN instance cannot be attached again.

Owner Account ?

195... 14/128

Network Type ?

VPC

Region ?

China (Hangzhou)

Networks ?

vpc-... 22/128

Contact Us

OK Cancel

## 9. Click OK.

## 1.4 Detach a network instance from a CEN instance

This topic describes how to detach a network instance from a CEN instance. After you detach a network instance from a CEN instance, the network instance cannot communicate with other network instances in the CEN instance.

### Procedure

1. Log on to the [CEN console](#).

2. **On the Instances page, find the target CEN instance, and then click Manage in the Actions column.**
3. **On the Networks tab page, find the target network instance, and then click Detach in the Actions column.**
4. **In the Detach Network dialog box, click OK.**

## 2 Bandwidth package management

---

### 2.1 Purchase a bandwidth package

This topic describes how to purchase a bandwidth package for a CEN instance. After you purchase a bandwidth package, you can set a cross-region bandwidth value to allow mutual access between network instances in different regions. Mutual access between two instances in the same region does not require a bandwidth package.

#### Context

The bandwidth package of a Cloud Enterprise Network (CEN) instance consists of an interconnection bandwidth and interconnected areas. When you purchase a bandwidth package, you must specify the areas to be interconnected. An area consists of one or more Alibaba Cloud regions.



The following table describes the areas and their respective regions.

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	China (Hong Kong), Singapore, Malaysia (Kuala Lumpur), Japan (Tokyo), India (Mumbai), Indonesia (Jakarta)
Europe	Germany (Frankfurt), UK (London)
Australia	Australia (Sydney)

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
3. On the CEN page, click the Bandwidth Packages tab, and then click Buy Bandwidth Package(Subscription).

4. Set the bandwidth package parameters, and then click Buy Now to complete the payment. The following table describes the parameters.

Configuration	Description
CEN ID	Select the CEN instance for which you want to purchase a bandwidth package.
Area	Select one area to be interconnected.   <b>Note:</b> You cannot modify the interconnected areas after you purchase the bandwidth package.
Area	Select the other area to be interconnected.   <b>Note:</b> You cannot modify the interconnected areas after you purchase the bandwidth package.
Bandwidth	Set a bandwidth value for the bandwidth package.
Name	Enter a name for the bandwidth package.
Duration	Select a validity period for the bandwidth package.



**Note:**

You cannot delete the bandwidth package after you purchase it unless you [open a ticket](#).

## 2.2 Associate a bandwidth package with a CEN instance

This topic describes how to associate a bandwidth package with a CEN instance.

After you purchase a bandwidth package, you must associate it with a CEN instance so that you can configure cross-region interconnection bandwidth.

### Prerequisites

The CEN instance is not associated with any bandwidth package between two regions in the same area or in two different areas. For example, if a CEN instance is associated with a bandwidth package between two regions in the Mainland China area, you cannot associate the CEN instance to a bandwidth package between another two regions in the Mainland China area. However, you can associate

the CEN instance with a bandwidth package between Mainland China to North America.

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
3. On the CEN page, click Bandwidth Packages tab, find the target bandwidth package, and then click Bind in the Actions column.
4. In the Bind Bandwidth Package dialog box, click OK.

## 2.3 Disassociate a bandwidth package from a CEN instance

This topic describes how to disassociate a bandwidth package from a CEN instance. After you disassociate a bandwidth package from a CEN instance, you can associate the bandwidth package with another CEN instance.

#### Prerequisites

The cross-region interconnection bandwidth is deleted from the bandwidth package. For more information, see [Delete a cross-region connection bandwidth](#).

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
3. On the CEN page, click the Bandwidth Packages tab, find the target bandwidth package, and then click Unbind in the Actions column.
4. In the Unbind Bandwidth Package dialog box, click OK.

After the bandwidth package is disassociated from the CEN instance, the bandwidth package is still in the available state and incurs fees. To delete the bandwidth package, [open a ticket](#).

## 2.4 Modify the bandwidth of a bandwidth package

This topic describes how to modify the bandwidth of a bandwidth package that is associated with a Cloud Enterprise Network (CEN) instance. After you modify the bandwidth of a bandwidth package, the new bandwidth takes effect immediately.

### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
3. On the CEN page, click the Bandwidth Packages tab, find the target bandwidth package, and then click Downgrade or Upgrade in the Bandwidth column.
4. In the Configuration Upgrade area, select a new bandwidth and click Pay.

## 2.5 Renew a Subscription bandwidth package

This topic describes how to renew a Subscription bandwidth package of a Cloud Enterprise Network (CEN) instance before the bandwidth package expires.

### Context

Pay-As-You-Go bandwidth packages cannot be renewed.

### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
3. On the CEN page, click the Bandwidth Packages tab, find the target bandwidth package, and then click Renew in the Actions column.
4. On the Renew page, select a renewal duration, click Pay, and then complete the payment.



## 3 Manage cross-region connection bandwidth

### 3.1 Configure a cross-region connection bandwidth

This topic describes how to configure a cross-region connection bandwidth. To connect networks in different regions, you must configure a cross-region connection bandwidth after purchasing a bandwidth package.

#### Context

The sum of all cross-region connection bandwidth values cannot exceed the bandwidth of the bandwidth package. By default, 1 Kbit/s bandwidth is provided for cross-region connections. This default bandwidth is provided for you to perform connectivity tests. To run normal services, you must buy a bandwidth package and set a proper cross-region connection bandwidth.

Assume that you have bought a bandwidth package of 20 Mbit/s for a Cloud Enterprise Network (CEN) instance and the connected areas are Mainland China and North America. You can set a cross-region connection bandwidth between US (Virginia) and China (Hangzhou), China (Shanghai), China (Shenzhen), or other regions. However, the total bandwidth values set for all cross-region connections cannot exceed 20 Mbit/s.

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.
3. Click the Region Connections tab, and click Set Region Connection.
4. In the displayed Set Region Connection dialog box, configure the cross-region connection bandwidth and click OK.

Configuration	Description
Bandwidth Package	Select the bandwidth package attached to the CEN instance.
Connected Regions	Select the regions to be connected.

Configuration	Description
Bandwidth	<p>Enter the required bandwidth value for the connected regions.</p> <p>The sum of all cross-region connection bandwidth values cannot exceed the bandwidth of the bandwidth package.</p> <p>Assume that you have bought a bandwidth package of 20 Mbit/s for a CEN instance and the connected areas are Mainland China and North America. You can set a cross-region connection bandwidth between US (Virginia) and China (Hangzhou), China (Shanghai), China (Shenzhen), or other regions. However, the total bandwidth values set for all the cross-region connections cannot exceed 20 Mbit/s.</p>

## 3.2 Modify a cross-region connection bandwidth

This topic describes how to modify a cross-region connection bandwidth. After you configure a cross-region connection bandwidth, you can modify the cross-region connection bandwidth value as needed.

### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.
3. Click the Region Connections tab.
4. On the Region Connections tab, find the target cross-region connection, and click Modify in the Bandwidth column.
5. In the displayed Set Region Connection dialog box, enter a new bandwidth value, and click OK.

The sum of all cross-region connection bandwidth values under a bandwidth package cannot exceed the bandwidth of the bandwidth package.

### 3.3 Delete a cross-region connection bandwidth

**This topic describes how to delete a cross-region connection bandwidth. After you delete a cross-region connection bandwidth, the networks in the connected regions cannot communicate with each other any longer.**

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.
3. Click the Region Connections tab, find the target cross-region connection, and then click Delete in the Actions column.
4. In the displayed Delete Region Connection dialog box, click OK.

## 4 Manage routes

---

### 4.1 Enable overlapping routing

This topic describes how to enable the overlapping routing function of a Cloud Enterprise Network (CEN) instance. After the overlapping routing function is enabled, CEN can learn overlapping routes that have the same prefix but different netmasks.

**Note:**

The overlapping routing function is enabled for CEN instances created after March 1, 2019 by default.

Before overlapping routing is enabled

Assume that VPC-A is attached to a CEN instance. A custom route entry with the destination CIDR block of 192.168.1.0/24 and the next hop of an ECS instance is added to VPC-A. By default, CEN will deny all routes with destination IP addresses of 192.168.1.0/x ( $1 \leq x \leq 32$ ) learnt from other attached networks.

Similarly, if a route with the destination CIDR block 192.168.1.0/24 is learnt by VPC-A from CEN, you cannot create any route with the destination CIDR block 192.168.1.0/x ( $1 \leq x \leq 32$ ) in VPC-A, and VPC-A rejects other routes that are sent from CEN with destination CIDR block of 192.168.1.0/x ( $1 \leq x \leq 32$ ).

After overlapping routing is enabled

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

Assume that a custom route with destination CIDR block of 192.168.1.0/24 and the next hop of ECS1 is added to VPC-A which has been attached to a CEN instance. After you enable overlapping routing, routes that are published from other networks in the CEN instance with destination CIDR block of 192.168.0.0/16 can still be accepted by VPC-A.

Also, the routes with the destination CIDR blocks 192.168.1.0/24 and 192.168.0.0/16 can be learned by CEN. CEN uses the longest prefix match algorithm to route traffic.

**Note:**

After the overlapping routing function is enabled, VPC does not accept routes that are subsets of its VSwitch. Assume that the CIDR block of a VSwitch is 10.0.0.0/16. The VPC to which the VSwitch belongs does not accept routes with the CIDR block 10.0.0.0/24 but accepts routes with the CIDR block 10.0.0.0/8.

## Procedure

To enable the overlapping routing function, follow these steps:

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.
3. In the Basic Settings section, click Enable next to Overlapping Routing Function.
4. In the Enable Overlapping Routing dialog box, click OK.

**Notice:**

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

## 4.2 Publish a route to CEN

This topic describes how to publish the route of an attached VPC or Virtual Border Router (VBR) to Cloud Enterprise Network (CEN). After you publish a route of an attached VPC or VBR to a CEN instance, other networks attached to the same CEN instance can learn the route.

## Context

The following table lists the route entries that can be published to CEN.

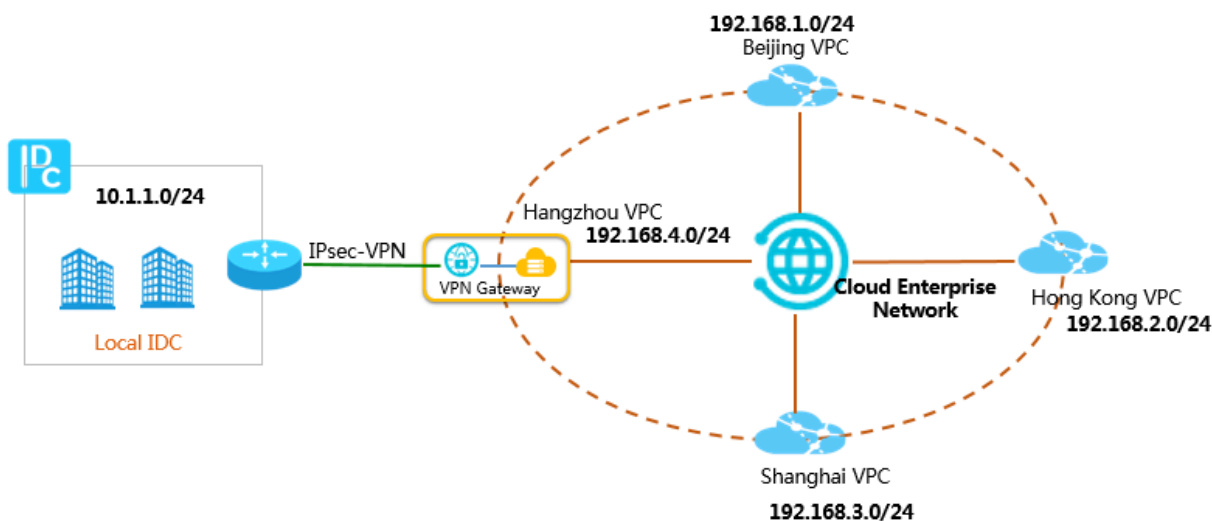
**Note:**

Currently, the console only supports publishing VPC routes to CEN. If you need to publish VBR routes to CEN, call the PublishRouteEntries API. For more information, see [#unique\\_22](#).

Route entries	Network	Published to CEN by default?
A route entry pointing to an ECS instance	VPC	No

Route entries	Network	Published to CEN by default?
A route entry pointing to a VPN Gateway	VPC	No
A route entry pointing to a High-Availability Virtual IP Address (HaVip)	VPC	No
A VPC system route entry	VPC	Yes
A route entry pointing to an on-premises data center	VBR	Yes
A BGP route entry	VBR	Yes

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



## Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and click Manage in the Actions column.
3. On the CEN page, click the Networks tab. Find the attached VPC and click the VPC ID.
4. On the VPC Details page, click the link to the route table.
5. On the Route Tables page, find the target route table, and click Manage in the Actions column.

6. On the Route Entry List tab, find the target route entry, and click Publish in the Route Status in CEN column.
7. In the Publish Route Entry dialog box, click OK.

### 4.3 Withdraw a route from CEN

This topic describes how to withdraw a route from Cloud Enterprise Network (CEN). You can withdraw a route that has been published to CEN. After the route is withdrawn, other networks attached to the same CEN instance cannot learn the route. If you publish a custom VPC or Virtual Border Router (VBR) route entry to a CEN instance and then delete the route from the VPC or VBR route table, the route entry is also deleted from CEN.

#### Context

The following table lists the route entries that can be withdrawn from CEN.



#### Note:

Currently, the console only supports withdrawing VPC routes from CEN. If you need to withdraw VBR routes, call `WithdrawPublishedRouteEntries`. For more information, see [#unique\\_24](#).

Route entries	Network	Published 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 High-Availability Virtual IP Address (HaVip)	VPC	No
A VPC system route entry	VPC	Yes
A route entry pointing to an on-premises data center	VBR	Yes
A BGP route entry	VBR	Yes

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.

3. On the CEN page, click the Networks tab. Find the target VPC and click the VPC ID.
4. On the VPC Details page, click the link to the route table.
5. On the Route Tables page, find the target route table, and click Manage in the Actions column.
6. On the Route Entry List tab, find the target route entry, and click Withdraw in the Route Status in CEN column.
7. In the Withdraw Published Route Entry dialog box, click OK.

## 4.4 View routes

### 4.4.1 View CEN routes in the CEN console

This topic describes how to view CEN routes in the Cloud Enterprise Network (CEN) console. You can view the route details in the CEN console.

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.
3. On the CEN page, click the Routes tab, and then filter the route information you want to view.

Table 4-1: Region-based route information

Field	Description
Destination CIDR Block	The destination CIDR block of the route.
Type	The type of the route. <ul style="list-style-type: none"> <li>· CEN: Routes that are learned from CEN.</li> <li>· System: Routes that are automatically added by the system.</li> </ul>
Routemap	Whether the route matches the configured route map. If the route matches a route map, you can click details to view the matched route map.



Field	Description
Route Property	The attributes of the route. To view details of the route attributes, such AS Path, Community, and priority, click details.
Status	The status of the route.
Next Hop	The region to which the next hop of the route belongs.
To other region route map	The matched route map to other regions.
To other region status	The status of the route to other regions.

Table 4-2: Network-based route information

Field	Description
Destination CIDR Block	The destination CIDR block of the route.
Publish Status	Whether the route has been published to CEN. <ul style="list-style-type: none"> <li>Published: The route has been published to CEN. Other networks in the same CEN instance can learn the route.</li> <li>NonPublished: The route is not published to CEN. Other networks in the same CEN instance cannot learn the route.</li> </ul>
Type	The type of the route. <ul style="list-style-type: none"> <li>CEN: Routes that are learned from CEN.</li> <li>System: Routes that are automatically added by the system.</li> </ul>
Routemap	Whether the route matches the configured route map. If the route matches a route map, you can click details to view the matched route map.
Route Property	The attributes of the route. To view details of the route attributes, such AS Path, Community, and priority, click details.
Status	The status of the route.
Next Hop	The region to which the next hop of the route belongs.

## 4.4.2 View CEN routes in the VPC route table

This topic describes how to view Cloud Enterprise Network (CEN) routes in the VPC route table.

### Procedure

1. Log on to the [VPC console](#).
2. In the left-side navigation pane, click **Route Tables**.
3. Select the region to which the target route table belongs.
4. On the **Route Tables** page, find the target route table, and click **Manage** in the **Actions** column.
5. On the **Route Entry List** tab, view CEN routes.

## 4.4.3 View CEN routes in the VBR route table

This topic describes how to view Cloud Enterprise Network (CEN) routes in the route table of the Virtual Border Router (VBR).

### Procedure

1. Log on to the [Express Connect console](#).
2. In the left-side navigation pane, choose **Physical Connections > Virtual Border Routers (VBRs)**.
3. On the **Virtual Border Routers (VBRs)** page, find the target VBR and click the **VBR ID**.
4. Click the **Routes** tab to view CEN routes.

## 5 Routing policies

### 5.1 Route map overview

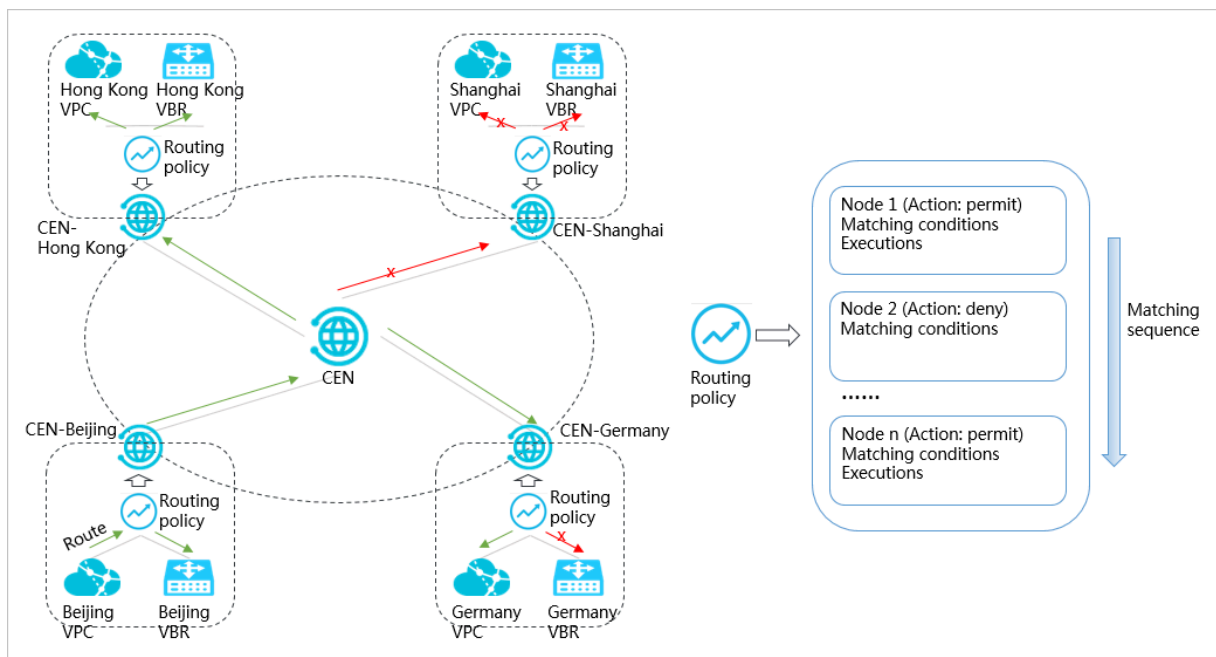
This topic provides an overview of the route map function supported by Cloud Enterprise Networks (CENs). By using the route map function, you can filter route information and modify route attributes to manage the communication between networks attached to a CEN.

**Note:**

To add your account to the whitelist for the route map function, [open a ticket](#).

#### Background information

A CEN instance has a regional CEN gateway in each region. The regional CEN gateways allow network instances (VPC, VBR, and CCN instances) attached to the CEN to communicate with each other. Routes can be transmitted to network instances in the same region or different regions through the inbound regional gateway (Import to Regional Gateway) and the outbound regional gateway (Export from Regional Gateway).



You can configure route maps for different regional gateways in a CEN. Each regional gateway can be configured with a route map in the inbound direction and

the outbound direction. The corresponding route maps of each gateway consist of a set of conditional statements and executable statements that are sorted in ascending order of priority. When route maps are executed, the system first check whether the route map with the highest priority matches the conditional statements. The route map permits or denies routes. If a route is permitted, you can modify its attributes.

#### Elements of a route map

A route map consists of basic information, match conditions, and actions.



**Note:**

Actions are only supported when the match mode is set to Permit.




- The following table describes the basic information of a route map.

Element	Description
Priority	<p>The priority of the route map. A lower value indicates a higher priority.</p> <p>The priority of a routing policy in the same region and in the same direction as that of the rule application is unique. When route maps are executed, the system first check whether the route map with the highest priority matches the conditional statements. Therefore, we recommend that you specify an appropriate priority for each route map.</p>
Description	The description of the route map.
Region	The region where the route map is applied.


Element	Description
Transmit Direction	<p>The direction of the route map.</p> <ul style="list-style-type: none"> <li>- Import to Regional Gateway: the direction in which a route is published to the regional gateway of the CEN. For example, a route is published to the local regional gateway from a local network instance or from another region.</li> <li>- Export from Regional Gateway: the direction in which a route is published from the regional gateway of the CEN. For example, a route is published from a local regional gateway to another network instance in this region or to another regional gateway.</li> </ul>
Match Mode	<p>The match mode used if a route matches all the match conditions. The following match modes are supported:</p> <ul style="list-style-type: none"> <li>- Permit: The route is permitted.</li> <li>- Deny: The route is denied.</li> </ul>
Preference	<p>The preference of the associated next route map. Optional. Value range: 1 to 100.</p> <ul style="list-style-type: none"> <li>- If this parameter is not set, the current route map is not associated with the next route map.</li> <li>- If this parameter is set to 1, the current route map is associated with the next route map.</li> <li>- If this parameter is set to a value that is not 1, the preference of the associated route map must be greater than that of the current route map.</li> </ul> <p>Only route maps whose match mode is set to Permit will be checked whether they match route maps associated with preference after meeting all current match conditions.</p>

- The following table describes the elements of a match condition.


Element	Description
Region	The source region of the route.

Element	Description
<b>Instance Type</b>	<p>The instance type of the route. The following instance types are supported:</p> <ul style="list-style-type: none"> <li>- The type of the source instance</li> <li>- The type of the target instance</li> </ul> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;">  <b>Note:</b>            The type of the target instance is valid only when the Transmit Direction is set to Export from Regional Gateway and the type of the target instance is the type of an instance in this region.         </div>
<b>Instance ID</b>	<p>The list of instance IDs contained in the route. The following instance IDs are supported:</p> <ul style="list-style-type: none"> <li>- A list of source instance IDs</li> <li>- A list of target instance IDs</li> </ul> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;">  <b>Note:</b>            The list of target instance IDs is valid only when the Transmit Direction is set to Export from Regional Gateway and the ID of the target instance is the ID of an instance in this region.         </div> <p>If an instance ID that matches the route is not in the instance ID list of the match condition, the matching succeeds. Otherwise, the matching fails.</p>
<b>Route Table</b>	<p>The route table of the route. The following route tables are supported:</p> <ul style="list-style-type: none"> <li>- The source route table</li> <li>- The source route table</li> </ul> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;">  <b>Note:</b>            The target route table is valid only when the Transmit Direction is set to Export from Regional Gateway and the target route table is a route table in this region.         </div>

Element	Description
<b>Route Type</b>	<p>The type of the route. The following route types are supported:</p> <ul style="list-style-type: none"><li>- <b>System:</b> the routes generated by the system.</li><li>- <b>Custom:</b> the custom routes.</li><li>- <b>BGP:</b> the routes advertised to BGP.</li></ul>
<b>Route Prefix</b>	<p>The prefix of the route. The following match methods are supported:</p> <ul style="list-style-type: none"><li>- <b>Fuzzy Match:</b> If the prefix of a route to be checked is contained in the prefix in the match condition, the route matches the condition.  For example, if the prefix in the match condition is set to 1.1.0.0/16 and the match method is set to <b>Fuzzy Match</b>, the route with the prefix of 1.1.1.0/24 matches the condition.</li><li>- <b>Exact Match:</b> A route matches the condition only when the prefix of the route is the same as the prefix in the match condition.  For example, if the prefix in the match condition is set to 1.1.0.0/16 and the match method is set to <b>Exact Match</b>, only the route with the prefix of 1.1.1.0/16 matches the condition.</li></ul>

Element	Description
AS Path	<p data-bbox="659 271 1334 344"><b>The AS path of the route. The following match methods are supported:</b></p> <ul data-bbox="659 371 1422 488" style="list-style-type: none"><li data-bbox="659 371 1422 488"><b>- Fuzzy Match: A route matches the condition if the AS path in the route overlaps the AS path in the match condition.</b></li></ul> <p data-bbox="699 521 1433 712"><b>For example, if the AS path in the match condition is set to [65001, 65002] and the match method is set to Fuzzy Match, the route with the AS path of [65501, 65001] matches the condition.</b></p> <ul data-bbox="659 734 1406 846" style="list-style-type: none"><li data-bbox="659 734 1406 846"><b>- Exact Match: A route matches the condition only when the AS path of the route is the same as the AS path in the match condition.</b></li></ul> <p data-bbox="699 880 1433 1122"><b>For example, if the AS path in the match condition is set to [65501, 65001, 60011] and the match method is set to Exact Match, only the route with the AS path of [65501, 65001, 60011] matches the condition.</b></p> <div data-bbox="667 1155 1433 1350"> <b>Note:</b> <b>The AS path is a well-known mandatory attribute, which describes the numbers of the ASs that a BGP route passes through during transmission.</b></div>



Element	Description
Community	<p>The community of the route. The following match methods are supported:</p> <ul style="list-style-type: none"> <li>- <b>Fuzzy Match:</b> A route matches the condition if the community of the route overlaps the community in the match condition.</li> </ul> <p>For example, if the community in the match condition is set to [65001:1000, 65002:2000] and the match method is set to Fuzzy Match, the route with the community of [65501:1000, 65001:1000] matches the condition.</p> <ul style="list-style-type: none"> <li>- <b>Exact Match:</b> A route matches the condition only when the community of the route is the same as the community in the match condition.</li> </ul> <p>For example, if the community in the match condition is set to [65001:65001, 65002:65005, 65003:65001] and the match method is set to Exact Match, only the route with the community of [65001:65001, 65002:65005, 65003:65001] matches the condition.</p> <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;">  <b>Note:</b>  Community is an optional transitive attribute. You can set different community values for different routes. Downstream routers can use community values to match the target routes. </div>

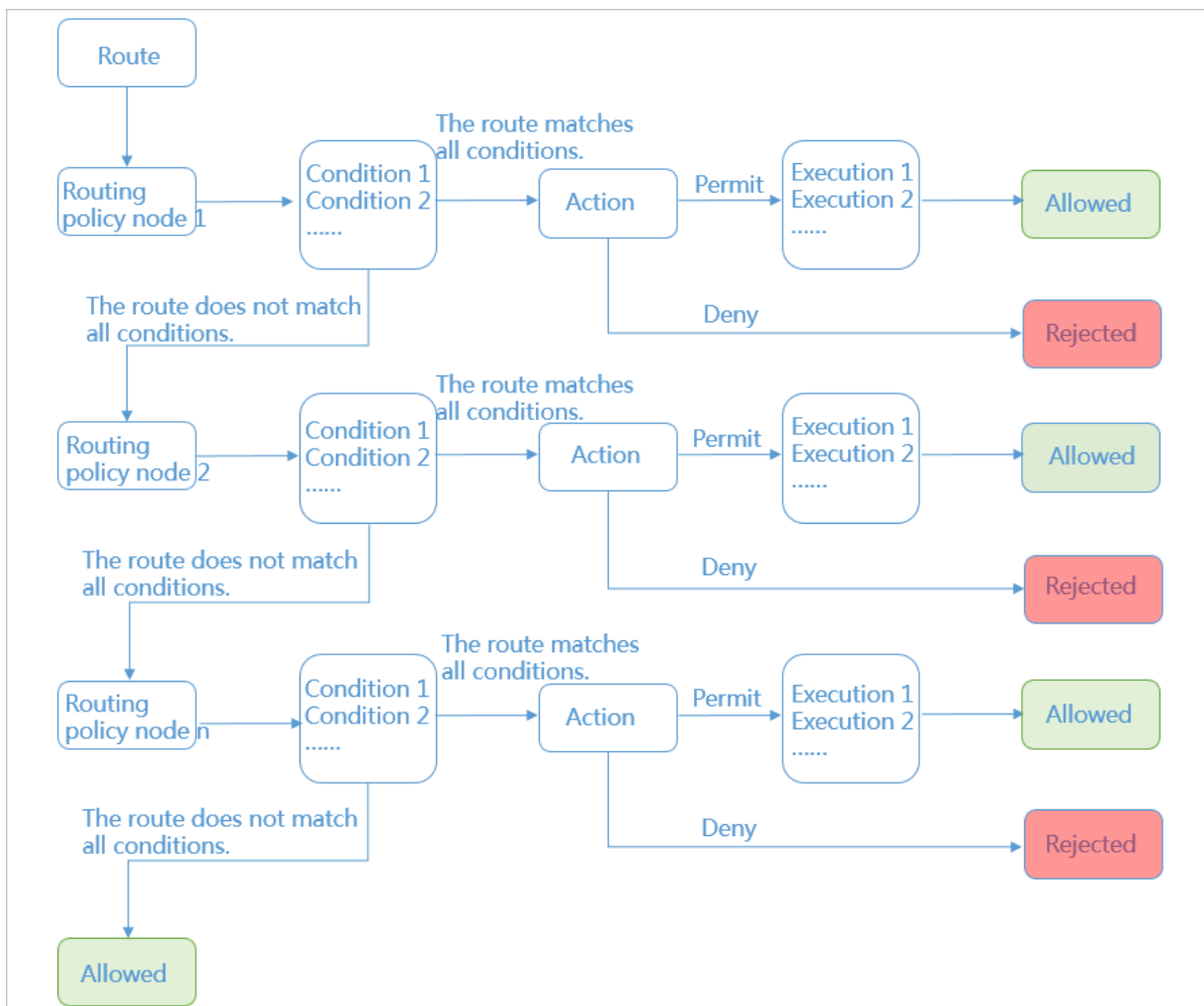
- The following table describes the elements of an action.

Element	Description
Community	Set the community value. The following settings are supported: <ul style="list-style-type: none"> <li>- Additive</li> <li>- Replace</li> </ul>
Preference	Set the preference of the permitted routes.

## Matching process of route maps

**Route maps use the match-action mode. Specifically, actions are performed only after conditions are matched. When route maps are executed, the system first check whether the route map with the highest priority matches the conditional statements.**

- **If a route meets all the match conditions in the route map, the match mode is then checked.**
  - **If the match mode is set to Permit, the executable statements in the route map are executed and the route is permitted. By default, the route will not be checked whether it matches the next route map unless the current route map is configured with a preference.**
  - **If the match mode is set to Deny, the route is denied. By default, the route will not be checked whether it matches the next route map, and the matching process is immediately ended.**
- **If the route fails to meet any match conditions in the current route map, the route will be checked whether it matches the next route map.**
- **If the route matches all the match conditions in the next route map, the match mode is then checked.**
  - **If the match mode is set to Permit, the executable statements in the route map are executed and the route is permitted. By default, the route will not be checked whether it matches the next route map unless the current route map is configured with a preference.**
  - **If the match mode is set to Deny, the route is denied. By default, the route will not be checked whether it matches the next route map, and the matching process is immediately ended.**
- **If the route fails to meet any match conditions in the current route map, the route will be checked whether it matches the next route map, and so on.**
- **If the route fails to meet any match conditions in all route maps, the route is permitted.**



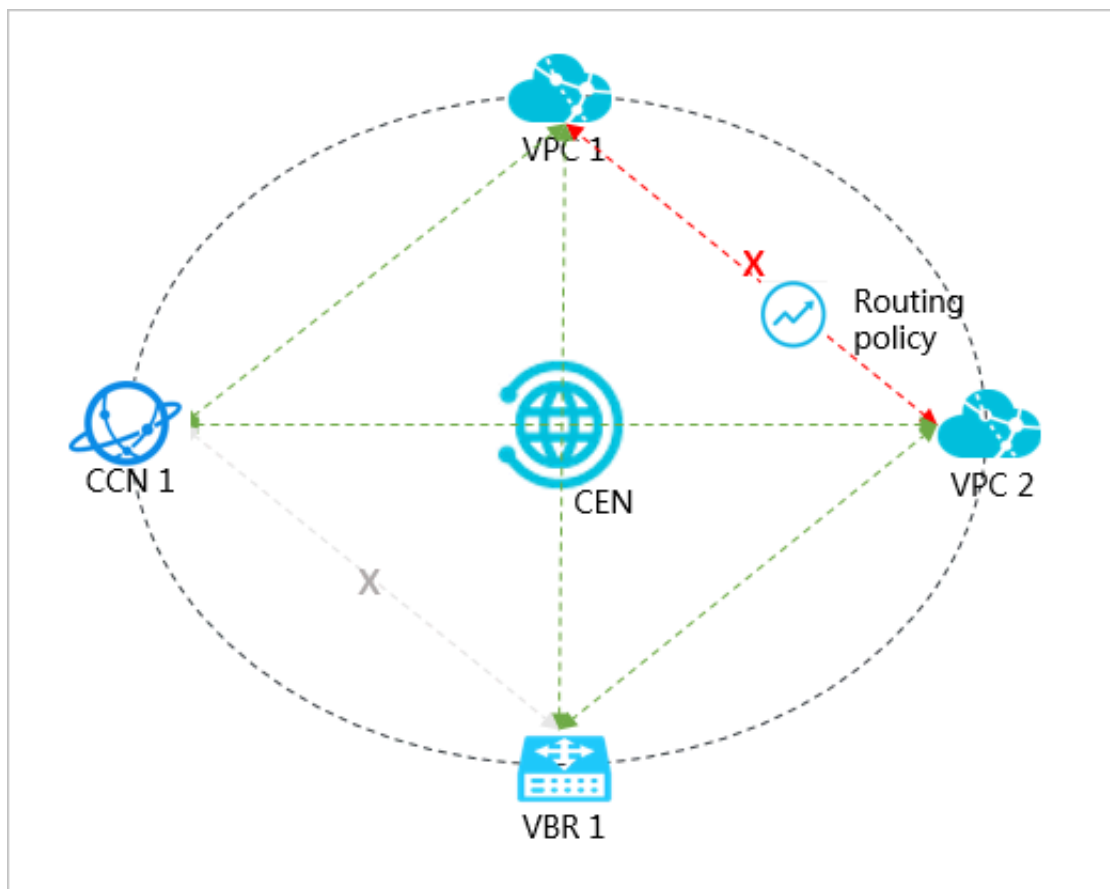
Scenarios

**Route maps can be used in the following scenarios:**

- **Control the communication between two VPCs, or between a VPC and a VBR or a CCN**

**By default, a VPC can communicate with Virtual Border Routers (VBRs), Cloud Connect Networks (CCNs) and other VPCs that are attached to the same CEN instance. However, you may need to block the communication between two VPCs,**

or between a VPC and a VBR or a CCN in some cases, as shown in the following figure.

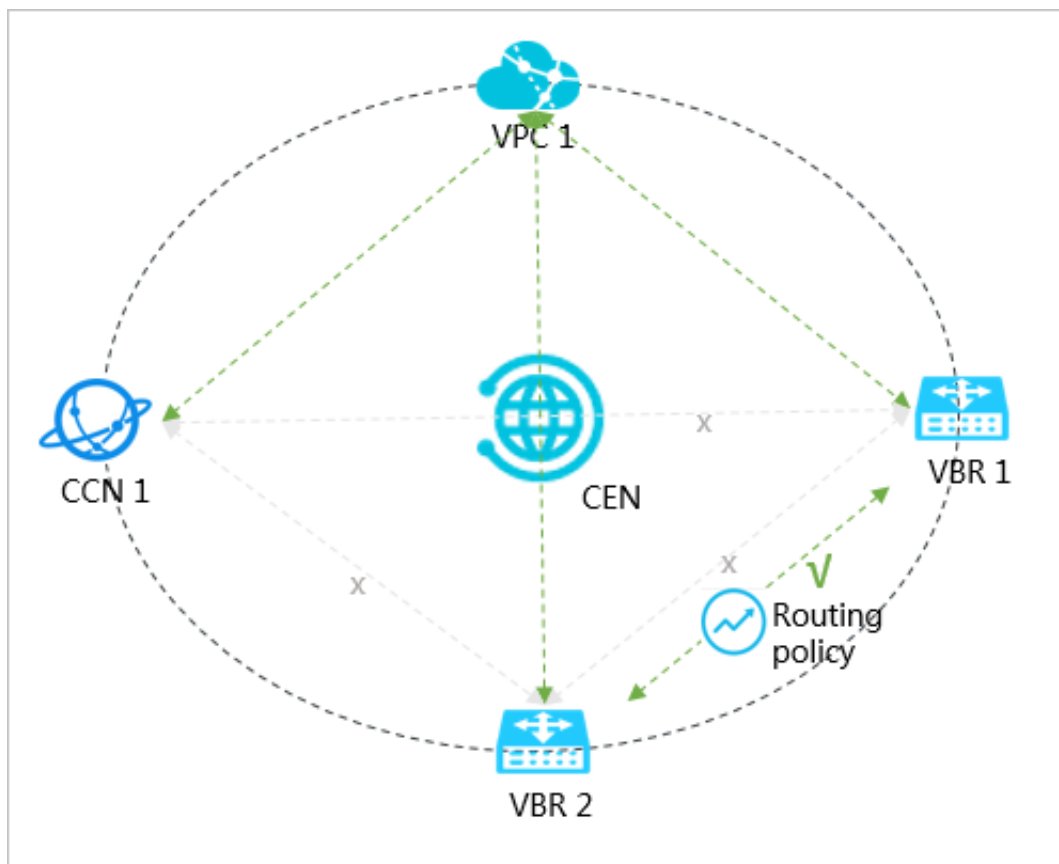


You can use the route map function to block the communication between VPC1 and VPC2 while maintaining the communication between VPC1 and CCN1 or VBR1, or between VPC2 and CCN1 or VBR1.

- Control the communication between two VBRs, or between a VBR and a VPC or a CCN

By default, a VBR cannot communicate with CCNs or other VBRs that are attached to the same CEN instance. However, you may need to enable the

communication between two VBRs or between a VBR and a CCN in some cases, as shown in the following figure.

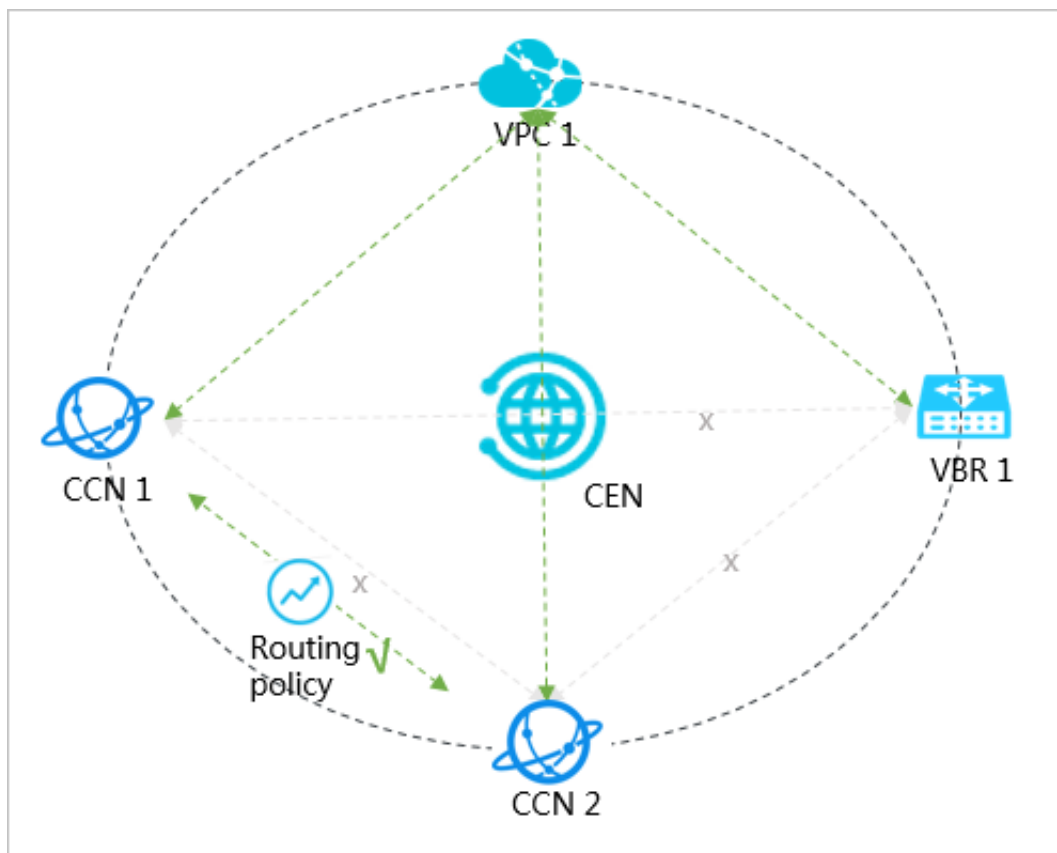


You can use the route map function to enable the communication between VBR1 and VBR2 while blocking the communication between VBR1 and CCN1 and between VBR2 and CCN1.

- Control the communication between two CCNs, or between a CCN and a VPC or a VBR

By default, a CCN cannot communicate with VBRs or other CCNs that are attached to the same CEN instance. However, you may need to enable the

communication between two CCNs or between a VBR and a CCN in some cases, as shown in the following figure.



You can use the route map function to enable the communication between CCN1 and CCN2 while blocking the communication between VBR1 and CCN1 and between VBR1 and CCN2.

#### Limits

The following table describes the limits that apply when you use the route map function.

Resource	Limit	Quota increase supported ?
Number of route maps that can be created in the inbound gateway direction in each region	100	No
Number of route maps that can be created in the outbound gateway direction in each region	100	No

## Related documentation

[Add a route map](#)

[Modify a route map](#)

[Delete a route map](#)

[Route map APIs](#)

## 5.2 Add a route map

**This topic describes how to add a route map to a CEN instance. Before you can use the route map function, you must add a route map. After you add a route map to a CEN instance, you can filter route information and modify route attributes to manage the communication between networks attached to the CEN.**

### Context

**You can configure route maps for different regional gateways in a CEN. Each regional gateway can be configured with a route map in the inbound direction and the outbound direction. Each route map is a set of conditional statements and executable statements. Route maps are sorted in ascending order of priority. When route maps are executed, the system first check whether the route map with the highest priority matches the conditional statements. The route map permit or deny routes. If a route is permitted, you can modify its attributes. For more information, see [Route map overview](#).**

### Procedure

- 1. Log on to the [CEN console](#).**
- 2. In the left-side navigation pane, click Instances.**
- 3. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.**
- 4. On the CEN page, click the Route Maps tab, and then click Add Route Map.**

5. On the Add Route Map page, set the parameters, and then click OK. The following table describes the parameters.

Configuration	Description
Priority	<p>The priority of the route map. A lower value indicates a higher priority.</p> <p>The priority of route maps in the same region and the same direction must be unique. When route maps are executed , the system first check whether the route map with the highest priority matches the conditional statements . Therefore, we recommend that you specify an appropriate priority for each route map.</p>
Description	Enter a description for the route map.
Region	The region where the route map is applied.
Transmit Direction	<p>The direction of the route map.</p> <ul style="list-style-type: none"> <li>• <b>Import to Regional Gateway:</b> Routes are imported to the regional gateway of the CEN. For example , a route is published to the local regional gateway from a local network instance or from another region.</li> <li>• <b>Export from Regional Gateway :</b> Routes are exported from the regional gateway of the CEN. For example, a route is published from a local regional gateway to another network instance in this region or to another regional gateway.</li> </ul>



Configuration	Description
<b>Match condition</b>	<p>The match conditions of the route map.</p> <p>Click + Add Match Value to add one or more matching conditions. For more information, see <a href="#">Match conditions</a>.</p>
<b>Match Mode</b>	<p>Select a match mode for the route map.</p> <ul style="list-style-type: none"><li>· <b>Permit:</b> All routes that meet the match conditions are permitted. If you set the match mode to Permit, the following actions are supported:<ul style="list-style-type: none"><li>- <b>Preference:</b> Set the preference of the permitted route.</li><li>- <b>Community:</b> Set the Community attribute, which can be Additive or Replace.</li></ul></li><li>· <b>Deny:</b> All routes that meet the match conditions are denied. If you set the match mode to Deny, no other actions are supported.</li></ul>

Configuration	Description
Preference	<p>The preference of the associated next route map. Optional. Value range: 1 to 100.</p> <ul style="list-style-type: none"><li>• If this parameter is not set, the current route map is not associated with the next route map.</li><li>• If this parameter is set to 1, the current route map is associated with the next route map.</li><li>• If this parameter is set to a value that is not 1, the preference of the associated route map must be greater than that of the current route map.</li></ul> <p>Only route maps whose match mode is set to Permit will be checked whether they match route maps associated with preference after meeting all current match conditions.</p>

### 5.3 Modify a route map

This topic describes how to modify a route map of a CEN instance. After you create a route map, you can modify its priority, description, transmit direction, match condition, match mode, and preference.

#### Context

You cannot modify the default route map whose priority is greater than 1000. However, you can add a custom route map to overwrite the default route map.

#### Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Instances.
3. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
4. On the CEN page, click the Route Maps tab, find the target route map, and then click Modify in the Actions column.

5. On the Modify Route Map page, modify the priority, description, transmit direction, match condition, match mode, and preference as needed, and then click OK.

## 5.4 Delete a route map

This topic describes how to delete a route map from a CEN instance. After you delete a route map from a CEN instance, the CEN will no longer execute the route map.

### Procedure

1. Log on to the *CEN console*.
2. In the left-side navigation pane, click Instances.
3. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
4. On the CEN page, click the Route Maps tab, find the target route map, and then click Delete in the Actions column.
5. In the Delete Route Map dialog box, click OK.

## 6 Access to cloud services

---

### 6.1 PrivateZone overview

**PrivateZone is a VPC-based service that resolves and manages private domain names. The Cloud Connect Network (CCN) and Virtual Border Router (VBR) attached to a CEN instance can access the PrivateZone service through CEN. For more information, see [Configure PrivateZone access](#).**

### 6.2 Configure PrivateZone access

**This topic describes how to configure PrivateZone access. PrivateZone is a VPC-based resolution and management service for private domain names. After you set a PrivateZone access, the Cloud Connect Network (CCN) and Virtual Border Router (VBR) attached to a CEN instance can access the PrivateZone service through CEN.**

#### Prerequisites

**Make sure that the host region and access region have networks (VPC, VBR, and CCN) attached to the CEN instance.**

#### Context

**The PrivateZone supports VBR or CCN that are in the same region as the host region. To access the PrivateZone service, a VPC that is attached to a CEN instance must configure the private network resolution service on the PrivateZone. For more information, see [Bind VPC](#).**

#### Procedure

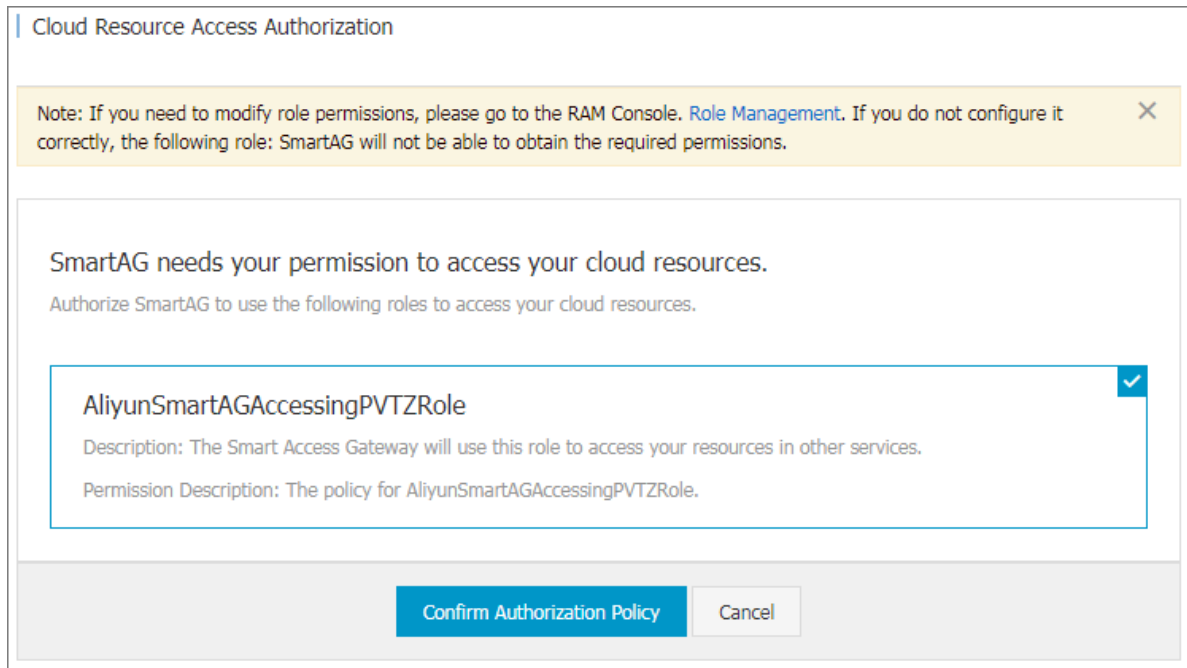
1. Log on to the [CEN console](#).
2. Click the ID of the target CEN instance.
3. Click the PrivateZone tab, and then click Authorization.



#### Note:

**You only need to grant permissions to Smart Access Gateway when you configure PrivateZone access for the first time.**

4. In the Cloud Resource Access Authorization dialogue box, click **Confirm Authorization Policy** to allow local branches associated with a CCN (a component of Smart Access Gateway) in the CEN instance to access PrivateZone.



5. Click **Set PrivateZone** and then in the **Set PrivateZone** dialog box, set the following parameters.

- a) **Host Region:** Select the region to which the VPC configured with the PrivateZone service belongs.
- b) **Host VPC:** Select the VPC configured with the PrivateZone service.

The PrivateZone service can be selected only by selecting the VPC in the host region.

- c) **Access region:** Select the region where the access is initiated.



**Note:**

- The access region can be the host region or a CCN. The target VBR and CCN network instances in the selected access region must be attached to the CEN instance.
- If you select a CCN whose account is different from that of the VPC or CEN, you must authorize the CCN. For more information, see [Grant permissions to CCN](#).

- d) Click **OK**.

## 6.3 Grant permissions to CCN

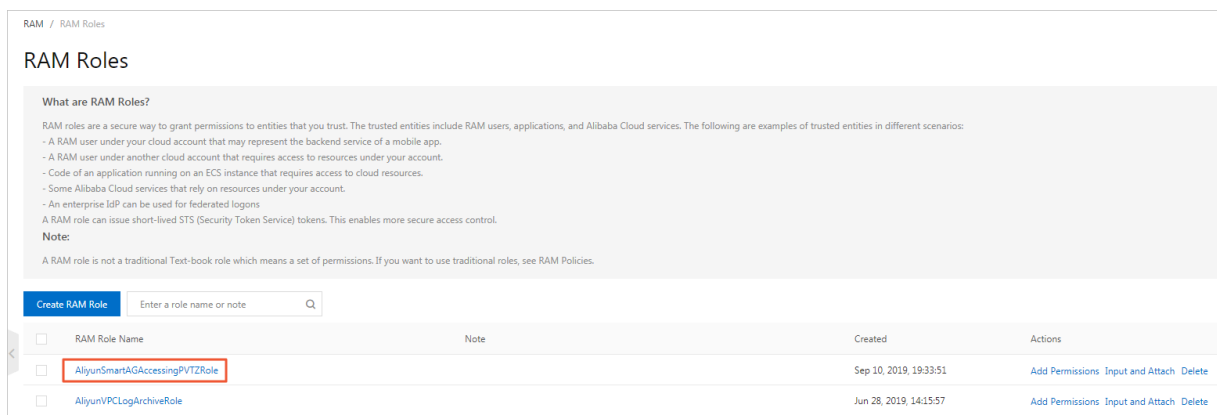
If you need to access the PrivateZone service through local branches of a Cloud Connect Network (CCN) in a Cloud Enterprise Network (CEN) instance, you must grant permissions to the CCN.

Same CEN, VPC, and CCN account

If the CCN, the VPC that is configured with PrivateZone, and the CEN instance all belong to the same account, you need to click **Authorization** on the PrivateZone tab, and grant permissions to CCN by following the prompts. The following table provides example information of this scenario.

Resource	User ID
CEN	111111
VPC	111111
CCN	111111

After you grant permissions to the CCN, the system automatically creates a RAM role named **AliyunSmartAGAccessingPVTZRole**. You can view the RAM role on the RAM Roles page of the [RAM console](#).



Same CEN and VPC account, but different CCN account

If the CEN instance and the VPC that is configured with PrivateZone belong to the same account, but the CCN belongs to a different account, you need to modify the authorization policy. The following table provides example information of this scenario.

Resource	User ID
CEN	111111

Resource	User ID
VPC	111111
CCN	333333

To grant permissions to the CCN, follow these steps:



**Notice:**

You need to use the account to which the VPC belongs.

1. Log on to the [CEN console](#).
2. Click the ID of the target CEN instance.
3. Click the PrivateZone tab, and then click Authorization. Grant permissions to the CCN by following the prompts.
4. Go to the [RAM console](#).
5. In the left-side navigation pane, click RAM Roles.
6. In the search box, enter AliyunSmartAGAccessingPVTZRole and click the displayed role name.

## 7. Click the Trust Policy Management tab and then click Edit Trust Policy.

RAM / RAM Roles / AliyunSmartAGAccessingPVTZRole

### ← AliyunSmartAGAccessingPVTZRole

**Basic Information**

Role Name: AliyunSmartAGAccessingPVTZRole

Note:

Permissions | **Trust Policy Management**

**Edit Trust Policy**

```

1  [
2  "Statement": [
3  {
4  "Action": "sts:AssumeRole",
5  "Effect": "Allow",
6  "Principal": {
7  "Service": [
8  "smartag.aliyuncs.com"
9  ]
10 }
11 }
12 ],
13 "Version": "1"
14 ]

```

## 8. In Service, add a record of `account ID of the CCN@smartag.aliyuncs.com` and click OK.

Same CCN and VPC account, but different CEN account

If the CCN and the VPC that is configured with PrivateZone belong to the same account, but the CEN instance belongs to a different account, you need to create a RAM role and grant it permissions by using the account of the VPC. The following table provides example information of this scenario.

Resource	User ID
CEN	333333



Resource	User ID
VPC	111111
CCN	111111

To grant permissions to the CCN, follow these steps:

1. Log on to the [RAM console](#) by using the credentials of the account to which the VPC belongs.
2. In the left-side navigation pane, click RAM Roles.
3. Click Create RAM Role, configure it by referring to the following description, and then click OK.
  - Select type of trusted entity: Select Alibaba Cloud Service.
  - Select Trusted Service: Select smartag Smart Access Gateway.
  - RAM Role Name: Enter AliyunSmartAGAccessingPVTZRole.
4. Click the created RAM role name.
5. On the Permissions tab, click Add Permissions.
6. In the search box, enter pvtz and click the displayed AliyunPvtzReadOnlyAccess policy.

Add Permissions

Principal

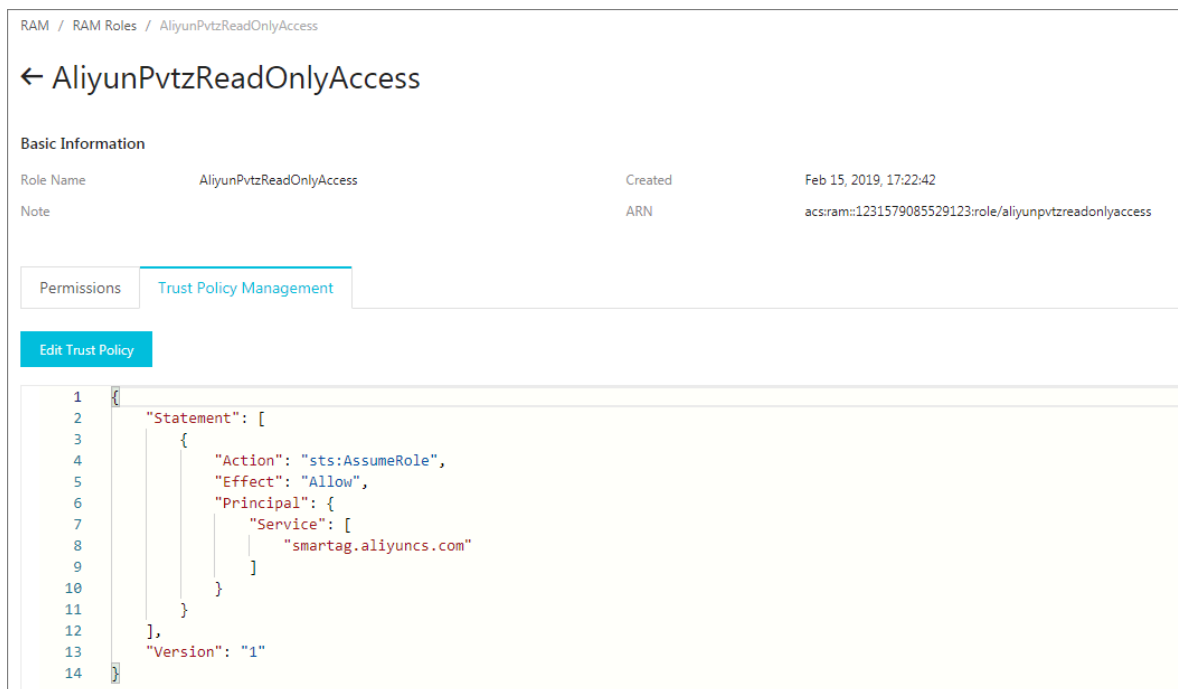
AliyunPvtzReadOnlyAccess@role.aliyun-document.onaliyunservice.com

Select Policy

System Policy  Selected (0) Clear

Policy Name	Note
AliyunPvtzFullAccess	Provides full access to Cloud DNS Private Zone via Management Console.
AliyunPvtzReadOnlyAccess	Provides read-only access to Cloud DNS Private Zone via Management Console.

**7. Go back to the RAM role details page, and click the Trust Policy Management tab to view the permission information.**

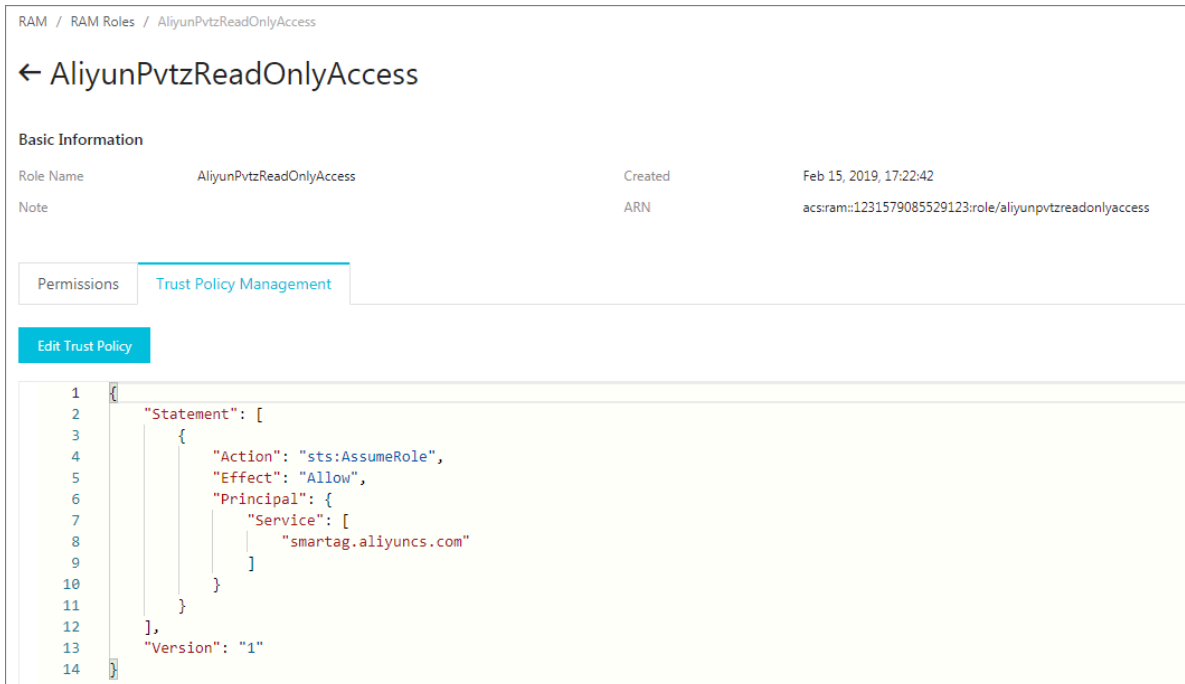


Three different accounts

**If the CCN, the VPC that is configured with PrivateZone, and the CEN instance belong to three different accounts, you need to complete the following tasks:**

Resource	User ID
CEN	111111
VPC	222222
CCN	333333

1. Use the account of the VPC to create a RAM role and grant it permissions. For more information, see *Same CCN and VPC account, but different CEN account*.



RAM / RAM Roles / AliyunPvtzReadOnlyAccess

### ← AliyunPvtzReadOnlyAccess

**Basic Information**

Role Name	AliyunPvtzReadOnlyAccess	Created	Feb 15, 2019, 17:22:42
Note		ARN	acsram::1231579085529123:role/aliyunpvtzreadonlyaccess

Permissions Trust Policy Management

Edit Trust Policy

```
1 {
2   "Statement": [
3     {
4       "Action": "sts:AssumeRole",
5       "Effect": "Allow",
6       "Principal": {
7         "Service": [
8           "smartag.aliyuncs.com"
9         ]
10      }
11    }
12  ],
13  "Version": "1"
14 }
```

2. Use the account of the VPC to modify the policy associated with the corresponding RAM role by adding the CCN service in the format of `CCN account`

ID@aliyuncs.com. For more information, see [Same CEN and VPC account, but different CCN account](#).



To allow multiple CCNs to access the PrivateZone service, add all the CCNs to the trust policy, as shown in the following figure.

Resource	User ID
CEN	111111
VPC	222222
CCN	333333
CCN	444444
CCN	555555

### Edit Trust Policy ✕

RAM Role Name

AliyunSmartAGAccessingPVTZRole

```
1  {
2    "Statement": [
3      {
4        "Action": "sts:AssumeRole",
5        "Effect": "Allow",
6        "Principal": {
7          "Service": [
8            "smartag.aliyuncs.com",
9            "333333@smartag.aliyuncs.com",
10           "444444@smartag.aliyuncs.com",
11           "555555@smartag.aliyuncs.com"
12         ]
13       }
14     ]
15   },
16   "Version": "1"
```

## 7 Health check

---

### 7.1 Configure the health check function

This topic describes how to configure the health check function of a Cloud Enterprise Network (CEN) instance. After you configure the health check function of a CEN instance, you can monitor the network conditions of on-premises data centers connected to the CEN.

#### Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Health Check.
3. On the CEN page, select the region to which the target CEN instance belongs, and then click Set Health Check.
4. On the Set Health Check page, set the parameters as needed, and then click OK.

The following table describes the parameters.

Configuration	Description
Instances	Select the CEN instance to which the VBR is attached.
Virtual Border Router (VBR)	Select the VBR that you want to monitor.
Source IP	The source IP address can be any available IP address in the 10.0.0.0/8, 192.168.0.0/16, or 172.16.0.0/12 CIDR block. However, the source IP address cannot conflict with the IP address that it will communicate with in the CEN, or the IP address of the VBR at the Alibaba Cloud side or customer side.
Target IP	The Interface IP address of the customer premises equipment connected to the VBR.

### 7.2 Delete health check settings

This topic describes how to delete the health check settings of a CEN instance. After you delete the health check settings of a CEN instance, you cannot monitor

the network status of the on-premises data center connected to the VBR of the CEN instance.

#### Procedure

1. Log on to the *CEN console*.
2. In the left-side navigation pane, click Health Check.
3. On the CEN page, select the region to which the target CEN instance belongs.
4. Find the target CEN instance, and then click Delete in the Actions column.
5. In the Delete Healthcheck dialog box, click OK.

### 7.3 Modify health check settings

This topic describes how to modify the source IP address and target IP address of the health check function.

#### Procedure

1. Log on to the *CEN console*.
2. In the left-side navigation pane, click Health Check.
3. On the CEN page, select the region to which the target CEN instance belongs.
4. Find the target CEN instance, and then click Edit in Actions column.
5. On the Set Health Check page, modify the source IP address and target IP address, and then click OK.
  - **Source IP:** The source IP address can be any available IP address in the 10.0.0.0/8, 192.168.0.0/16, or 172.16.0.0/12 CIDR block. However, the source IP address cannot conflict with the IP address that it will communicate with in the CEN, or the IP address of the VBR at the Alibaba Cloud side or customer side.
  - **Target IP:** The interface IP address of the customer premises equipment connected to the VBR.

## 8 Monitoring and alarms


---

### 8.1 View monitoring data

#### 8.1.1 View the monitoring data of a bandwidth package

This topic describes how to view the monitoring data of a bandwidth package, such as bandwidth and bandwidth utilization.


##### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.
3. On the CEN page, click the Bandwidth Packages tab, find the target bandwidth package, and then click  in the Monitor column to view the monitoring data.
  - **Bandwidth Utilization:** the percentage of used bandwidth to total bandwidth.
  - **Bandwidth:** the bandwidth usage.

#### 8.1.2 View the monitoring data of a cross-region connection bandwidth

This topic describes how to view the monitoring data of a cross-region connection bandwidth, such as delay, bandwidth, and bandwidth utilization of the cross-region connection.

##### Procedure


1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance and click Manage in the Actions column.
3. On the CEN page, click the Region Connections tab, find the target cross-region connection, and click  in the Monitor column to view the monitoring data.
  - **Bandwidth Utilization:** the percentage of used cross-region connection bandwidth to total cross-region connection bandwidth.
  - **Bandwidth:** the usage of the cross-region connection bandwidth.
  - **Delay:** the communication delay between connected regions.



### 8.1.3 View the monitoring data of a physical connection

This topic describes how to view the monitoring data of a physical connection, such as the egress bandwidth, ingress bandwidth, delay, and packet loss.

#### Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Health Check.
3. On the CEN page, select the region to which the target CEN belongs.
4. Find the target health check task, and then click  in the Monitor column to view the monitoring data.

- **Egress Bandwidth:** the bandwidth of data transmission from Alibaba Cloud to on-premises data centers.
- **Ingress Bandwidth:** the bandwidth of data transmission from on-premises data centers to the Alibaba Cloud.
- **Delay:** the communication delay between Alibaba Cloud and on-premises data centers.
- **Packet loss:** the packet loss rate of the health check.

## 8.2 CEN alarm rules

### 8.2.1 Set an alarm rule for a bandwidth package

This topic describes how to set an alarm rule for a bandwidth package in a CEN instance. By doing so, you can monitor the usage of the bandwidth package through the CloudMonitor service.

#### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.
3. Click the Bandwidth Packages tab, find the target bandwidth package, and then click Set Alarm in the Monitor column.

#### 4. On the Create Alarm Rule page, set the parameters as needed, and then click OK.

You can set alarm rules for the Area Internet Out Rate and the Area Internet Out Rate Percent. You can set the alarm threshold and alarm conditions based on your specific service needs.

Create Alarm Rule [← Back to](#)

---

**1 Related Resource**

Product:

Resource Range:

Instances:  PackageId:

---

**2 Set Alarm Rules**


Alarm Rule:

Rule Description:

[+Add Alarm Rule](#)

Mute for:

Effective Period:  To:




---

**3 Notification Method**

Notification Contact:

[Quickly create a contact group](#)

Phone + Text Message + Email + DingTalk (Critical)   Text Message + Email + DingTalk (Warning)  Email + DingTalk (Info)

Auto Scaling (the corresponding scaling rule will be triggered when the alarm occurs)

Email Subject:

Email Remark:

HTTP CallBack:

## 8.2.2 Set an alarm rule for a region connection

This topic describes how to set an alarm rule for a region connection in a CEN instance. By doing so, you can monitor the usage of the region connection through the CloudMonitor service.

### Procedure

1. Log on to the [CEN console](#).
2. On the Instances page, find the target CEN instance, and then click Manage in the Actions column.

3. Click the **Region Connections** tab, find the target connection, and then click **Set Alarm** in the **Monitor** column.
4. On the **Create Alarm Rule** page, set the parameters as needed, and then click **OK**.  
You can set alarm rules for the **Area Internet Out Rate** and the **Area Internet Out Rate Percent**. You can set the alarm threshold and alarm conditions based on your specific service needs.

Create Alarm Rule [Back to](#)

---

**1 Related Resource**

Product:

Resource Range:

Instances:  Flow direction:

---

**2 Set Alarm Rules**


Alarm Rule:

Rule Description:

[+Add Alarm Rule](#)

Mute for:

Effective Period:  To:




---

**3 Notification Method**

Notification Contact Group:  Selected Groups 0 count

Contact:

Phone + Text Message + Email + DingTalk (Critical)

Text Message + Email + DingTalk (Warning)

Email + DingTalk (Info)

Auto Scaling (the corresponding scaling rule will be triggered when the alarm occurs)

Email Subject:

Email Remark:

HTTP CallBack:

### 8.2.3 Set an alarm rule for a physical connection

This topic describes how to set an alarm rule for the physical connection in a CEN instance. By doing so, you can monitor the usage of the physical connection through the CloudMonitor service.

#### Context

The physical connection alarm function is unavailable due to a system upgrade from November 11, 2018 to October 1, 2019.

## Procedure

1. Log on to the *CEN console*.
2. In the left-side navigation pane, click Health Check.
3. Select the region to which the CEN instance belongs, and then click Set Alarm in the Monitor column.
4. On the Create Alarm Rule page, set the parameters as needed, and then click OK.

## 9 Flow logs

---

### 9.1 Flow log overview

This topic describes the flow log function of Cloud Enterprise Networks (CENs). By using the flow log function, you can capture the traffic data of the network instances in different regions of a CEN. You can also use the data aggregated in flow logs to analyze cross-region traffic flows, minimize traffic costs, and troubleshoot network faults.



**Note:**

- Flow logs only capture cross-region traffic data of mutual access. Traffic between two VPCs in a region, or traffic among VPCs, VBRs, and on-premises data centers in a region, are not captured.
- The flow log function is supported in China (Hangzhou), China (Shanghai), China (Zhangjiakou), China (Shenzhen), China (Beijing), China (Hohhot), China (Hong Kong), UK (London), US (Silicon Valley), US (Virginia), Germany (Frankfurt), India (Mumbai), Singapore, Indonesia (Jakarta), Australia (Sydney), and Malaysia (Kuala Lumpur).

#### Background information

Each flow log consists of the following traffic data: a source IP address, a source port, a destination IP address, a destination port, and the protocol that is used.

To capture traffic data with flow logs, you must create a flow log for each region where traffic information is to be captured and specify the Project and Logstore of the corresponding region. The captured traffic data is stored in Alibaba Cloud Log Service. You can view and analyze the captured traffic data in the Alibaba Cloud Log Service. The flow log function is currently in the beta testing phase. During this phase, you are only charged for the storage and retrieval of traffic data in Log Service.

The traffic data captured by the flow log function is written to Log Service as flow log records. Each flow log record captures specified traffic data in a specified

capture window, which is about 10 minutes. During this period, data is aggregated and then released to the flow log record.

The following table describes the fields of a flow log record.

Field	Description
account-id	Account ID.
cen-id	The ID of the CEN instance.
src_region	The source region.
srcaddr	The source IP address.
srcport	The source port.
dst_region	The destination region.
dstaddr	The destination IP address.
dstport	The destination port.
protocol	The protocol type.
direction	The direction of the traffic. Valid values: <ul style="list-style-type: none"> <li>· in: indicates inbound traffic.</li> <li>· out: indicates outbound traffic.</li> </ul>
packets	The number of data packets.
bytes	The size of data packets.
rtt	The latency.
start	The start time of the capture window.
end	The end time of the capture window.
log-status	The status of the flow log record. Valid values: <ul style="list-style-type: none"> <li>· OK: indicates that traffic data was successfully recorded.</li> <li>· NODATA: indicates that no traffic data was detected during the capture window.</li> <li>· SKIPDATA: indicates that some flow log records were skipped during the capture window.</li> </ul>

## Limits

The following table describes the limits that apply when you use the flow log function.

Resource	Limit	Quota increase supported ?
The maximum number of flow logs that can be created for a CEN instance in a region	1	No
The maximum number of flow logs that can be created for each account	30	No

## Procedure

The following figure shows the procedure for configuring the flow log function.



### 1. Activate Log Service

The traffic data captured by the flow log function is stored in Alibaba Cloud Log Service. Therefore, you need to activate Log Service before you create a flow log.

### 2. Optional. Create an AccessKey

If you want to write data to Log Service through APIs or SDKs, you must first create an AccessKey (AK). However, if you want to collect logs by using Logtail, you do not need to create an AK.

### 3. Create a Project

You must create a Project in Log Service. For more information, see [#unique\\_54/unique\\_54\\_Connect\\_42\\_section\\_ahq\\_ggx\\_ndb](#).

#### 4. Create a Logstore

A Logstore is a collection of resources created in a Project. All data in a Logstore is from the same data source. After creating a Project, you must create a Logstore. For more information, see [Create a Logstore](#).

#### 5. Create a flow log

You can create a flow log through the CEN console. For more information, see [Create a flow log](#).

#### 6. View the flow log

You can view the captured traffic data in the flow log. You can use the captured traffic data to analyze cross-region traffic flows, minimize traffic costs, and troubleshoot network faults. For more information, see [View flow logs](#).

#### Related documentation

- [Start a flow log](#)
- [Stop a flow log](#)
- [Modify a flow log](#)
- [Delete a flow log](#)

## 9.2 Create a flow log

This topic describes how to create a flow log. Flow logs are used to record the traffic data of the networks that belong to different regions associated with a CEN instance. To record traffic data, you must create a flow log.

#### Prerequisites

Before you create a flow log, make sure that the following conditions are met:

- The Log Service is enabled on the Log Service product page.
- A Project and a Logstore are created to store the traffic data. For more information, see [#unique\\_54/unique\\_54\\_Connect\\_42\\_section\\_ahq\\_ggx\\_ndb](#) and [Create a Logstore](#).

#### Context

If you want to capture traffic data for different regions, you must create a flow log for each region and specify the Project and Logstore of the corresponding region.



The captured traffic data is stored in Alibaba Cloud Log Service. You can view and analyze the captured traffic data in Alibaba Cloud Log Service.

## Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Flow Logs.
3. Select the region of the flow log to be created.



### Note:

- The region of the flow log must be the same as that of the Project.
- The flow log function is supported in China (Hangzhou), China (Shanghai), China (Zhangjiakou), China (Shenzhen), China (Beijing), China (Hohhot), China (Hong Kong), UK (London), US (Silicon Valley), US (Virginia), Germany (Frankfurt), India (Mumbai), Singapore, Indonesia (Jakarta), Australia (Sydney), and Malaysia (Kuala Lumpur).

4. On the CEN page, click Create Flow Log.
5. On the Create Flow Log page, configure the flow log according to the following information, and then click OK.

Configuration	Description
Name	Enter a name for the flow log to be created.
CEN	Select the CEN instance of which you want to record the traffic data.
Project	Select the Project where the recorded traffic data is stored.
LogStoreName	Select the Logstore where the recorded traffic data is stored.
Description	Enter a description for the flow log.

After a flow log is created, the flow log is in an Active status and starts to capture traffic.

We recommend that you enable and configure indexes for log service to quickly access log data collected by log service. For more information, see [#unique\\_61](#).

Related topics

[#unique\\_62](#)

## 9.3 View flow logs

This topic describes how to view the recorded traffic data in a flow log. You can use the traffic data recorded in flow logs to analyze cross-region traffic flow, optimize traffic costs, and troubleshoot network faults.

### Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Flow Logs.
3. Select the region of the target flow log.
4. On the CEN page, find the target flow log and click the Logstore name link.
5. In the Log Service console, set the search conditions and click Search & Analysis.

You can view and analyze the displayed data.

## 9.4 Start a flow log

This topic describes how to start a flow log that is in the Inactive state. If you want to record the cross-region traffic data of networks associated with a Cloud Enterprise Network (CEN) instance, you must start the flow log.

### Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Flow Logs.
3. Select the region of the target flow log.
4. On the CEN page, find the target flow log and click Start in the Actions column.

After the flow log is started, the status of the flow log changes to Active.

Related topics

[#unique\\_63](#)

## 9.5 Stop a flow log

This topic describes how to stop a flow log. If you want to temporarily stop recording traffic data between the networks associated with a Cloud Enterprise Network (CEN) instance, you must stop the corresponding flow log.

### Procedure

1. Log on to the [CEN console](#).

2. In the left-side navigation pane, click Flow Logs.
3. Select the region of the target flow log.
4. On the CEN page, find the target flow log and click Stop in the Actions column.

After the flow log is stopped, the status of the flow log changes to Inactive.


Related topics

[#unique\\_64](#)


## 9.6 Modify a flow log

This topic describes how to modify the name and description of a flow log.

### Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Flow Logs.
3. Select the region of the target flow log.
4. On the CEN page, find the target flow log, rest the pointer over the instance name in the Instance ID/Name column, click the displayed  image, and enter a new name for the flow log.

The name must be 2 to 128 characters in length and can contain letters, numbers, hyphens (-), and underscores (\_). It must start with a letter.

5. To modify the description of the flow log, click the  image in the Description column and enter a new description.

The description must be 2 to 256 characters in length and cannot start with `http://` or `https://`.

Related topics

[#unique\\_65](#)

## 9.7 Delete a flow log

This topic describes how to delete a flow log.

### Context

You can delete a flow log that is in the Active or Inactive state.

### Procedure

1. Log on to the [CEN console](#).

- 2. In the left-side navigation pane, click Flow Logs.**
- 3. Select the region of the target flow log.**
- 4. On the CEN page, find the target flow log and click Delete in the Actions column.**
- 5. In the displayed dialog box, click OK.**

Related topics

[#unique\\_66](#)

## 10 Increase the quota of a cloud resource

---

This topic describes how to increase the quota of a cloud resource in the CEN console. If the remaining quota of a cloud resource is insufficient, you can apply for a quota increase.

### Procedure

1. Log on to the [CEN console](#).
2. In the left-side navigation pane, click Quotas. The resource usage of the CENs under your account is displayed.
3. Click Apply in the Actions column, and then set the following parameters in the displayed dialog box:
  - **Quantity for Application:** the resource quota that you need. The quota you apply for must be greater than the current quota. For information about the default resource limits of a CEN, see [#unique\\_68](#).
  - **Reason for Application:** your reason for applying for a quota increase. We recommend that you provide details about your specific scenarios.
  - **Email:** your email address.
4. Click OK.

The system then determines whether the quota increase application is reasonable.

- If the request is unreasonable, the status of the application is Rejected.
- If the request is reasonable, the status of the application is Approved, and the quota is automatically increased to the quota that you applied for.

To view the historical quota applications of a cloud resource, click Application History in the Application History column.