# Alibaba Cloud
# Cloud Enterprise Network

## Quick Start

Issue: 20190903

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# Generic conventions

Table -1: Style conventions

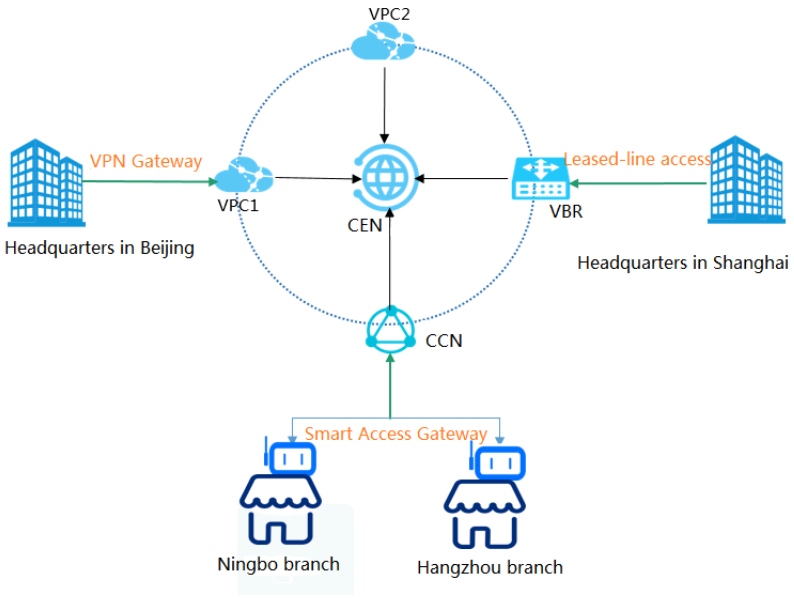
| Style | Description | Example |
| --- | --- | --- |
|  | This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results. |  Danger:<br>Resetting will result in the loss of user configuration data. |
|  | This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results. |  Warning:<br>Restarting will cause business interruption. About 10 minutes are required to restore business. |
|  | This indicates warning information, supplementary instructions, and other content that the user must understand. |  Notice:<br>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:<br>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` *Instance_ID* |
| [] or [a\|b] | It indicates that it is a optional value, and only one item can be selected. | `ipconfig` *[-all\|-t]* |

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

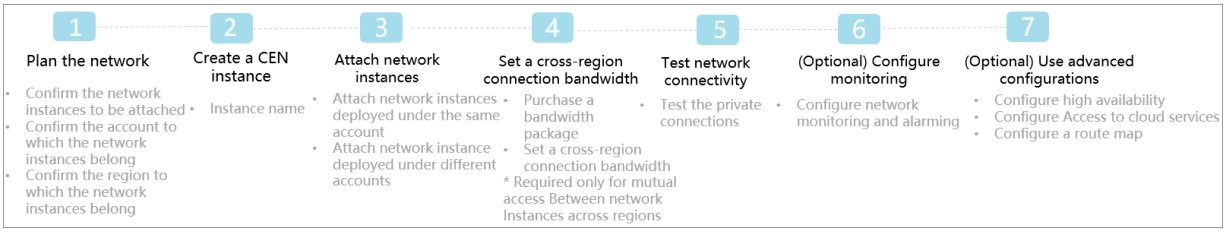
# Contents

# 1 Alibaba Cloud CEN tutorials

This topic provides an overview of Cloud Enterprise Network (CEN) tutorials. When you use a CEN, you can build a global network that consists of interconnected hybrid clouds and distributed service systems. You can attach network instances to a CEN instance so that the network instances can communicate with each other.




Typically, the configurations shown in the following figure are required when a CEN is used for network interconnection. However, these configurations may vary depending on the region and account to which network instances belong. Such network instances include VPCs, VBRs associated with on-premises data centers, CCNs associated with local branches or headquarters. Therefore, we recommend that you use these configurations selectively according to your specific business needs and network resources.




This tutorial uses the following two ECS instances deployed in different zones under different accounts as an example to describe how to establish intranet communication through a CEN.

| Configuration | ECS1 | ECS2 |
| --- | --- | --- |
| Private IP address | 192.168.1.41 | 192.168.136.60 |
| Region | China (Shanghai) | China (Hangzhou) |
| Account | 123157908xxxx123 | 1954105xxxx83124 |
| VPC | vpc-uf6w8bk8dx xxxfj0b7k94 | vpc-bp1dylcs2x xxxnkckxxxx |

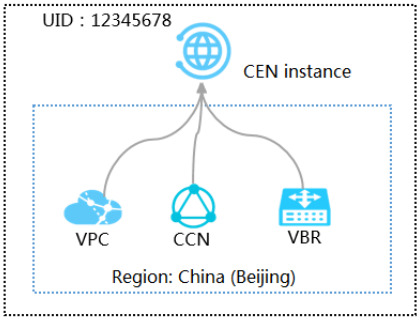
# 2 Use a CEN to interconnect network instances

This topic describes how to use a Cloud Enterprise Network (CEN) to interconnect network instances, such as VPCs, VBRs associated with on-premises data centers, and CCNs to which local branches or headquarters is added. The procedure varies depending on the specific regions and accounts.

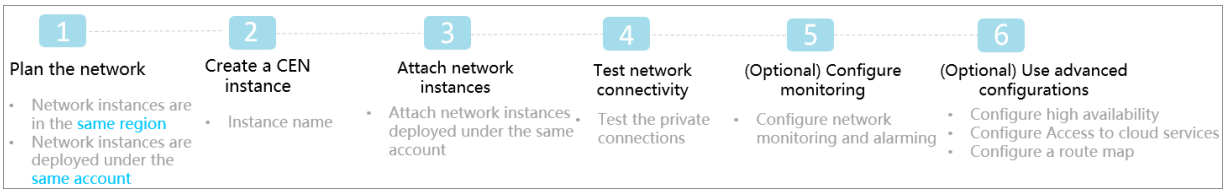
## Interconnect network instances under the same account in the same region

To interconnect network instances under the same account in the same region, you need to attach these network instances to a CEN instance.

### Network instances



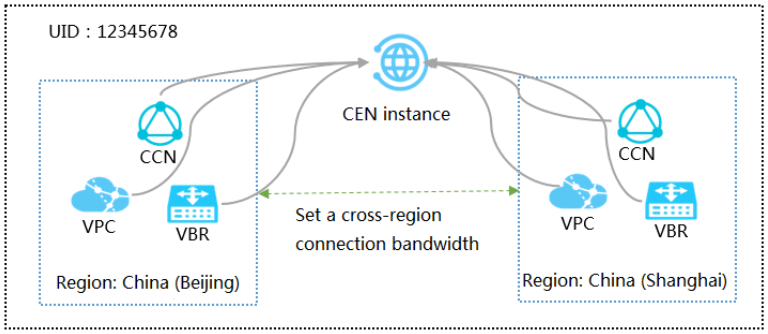

### Procedure



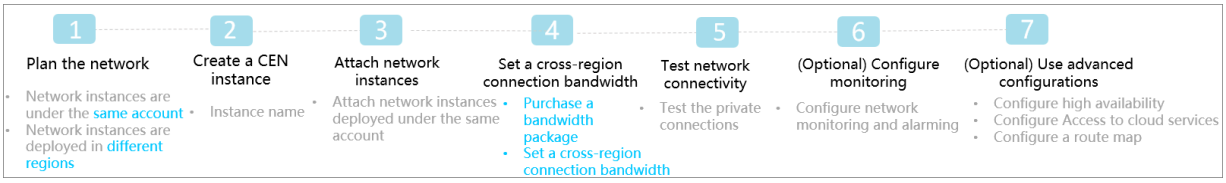

## Interconnect network instances under the same account in different regions

To interconnect network instances under the same account in different regions, you need to attach these network instances to a CEN instance and set a cross-region connection bandwidth.

### Network instances



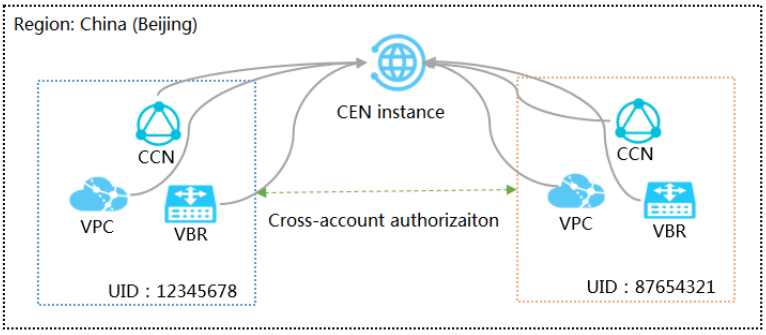

### Procedure



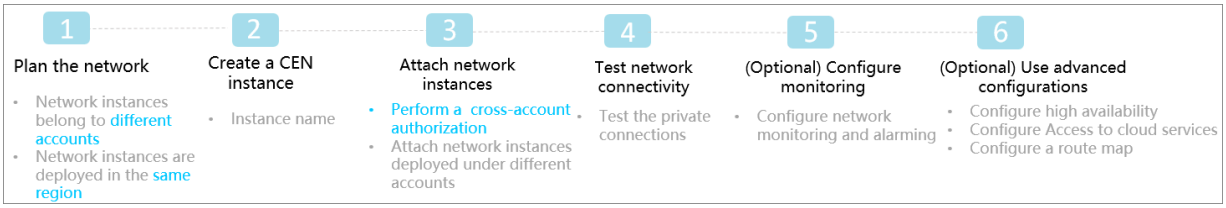

## Interconnect network instances under different accounts in the same region

To interconnect network instances under different accounts in the same region, you need to perform a cross-account authorization and then attach these network instances to a CEN instance.

### Network instances



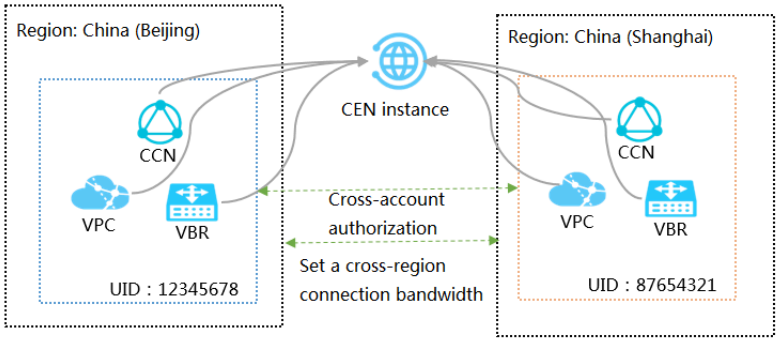

### Procedure



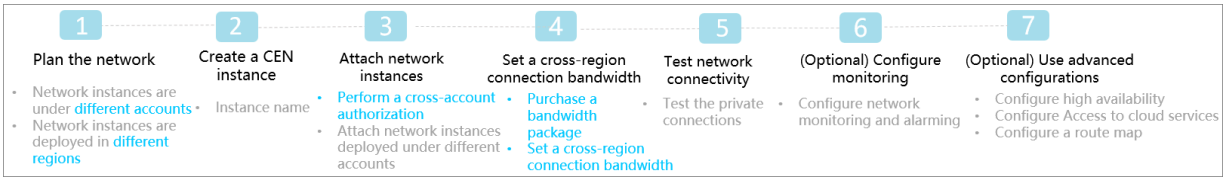
## Interconnect network instances under different accounts in different regions

**To interconnect network instances under different accounts in different regions, you need to perform a cross-account authorization, attach these network instances to a CEN instance, and then set a cross-region connection bandwidth.**

### Network instances




### Procedure



# 3 Create a CEN instance

Before you use Cloud Enterprise Network (CEN) for intranet communication, you must create a CEN instance. When you create a CEN instance, you can directly attach networks under the same account to the CEN instance.

Procedure

1. Log on to the CEN console.
2. On the Instances page, click Create CEN instance.
3. In the Create a CEN instance dialog box, configure the CEN instance according to the following information:
   a) Enter a name for the CEN instance to be created.

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

   b) Optional: Enter a description for the CEN instance.

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

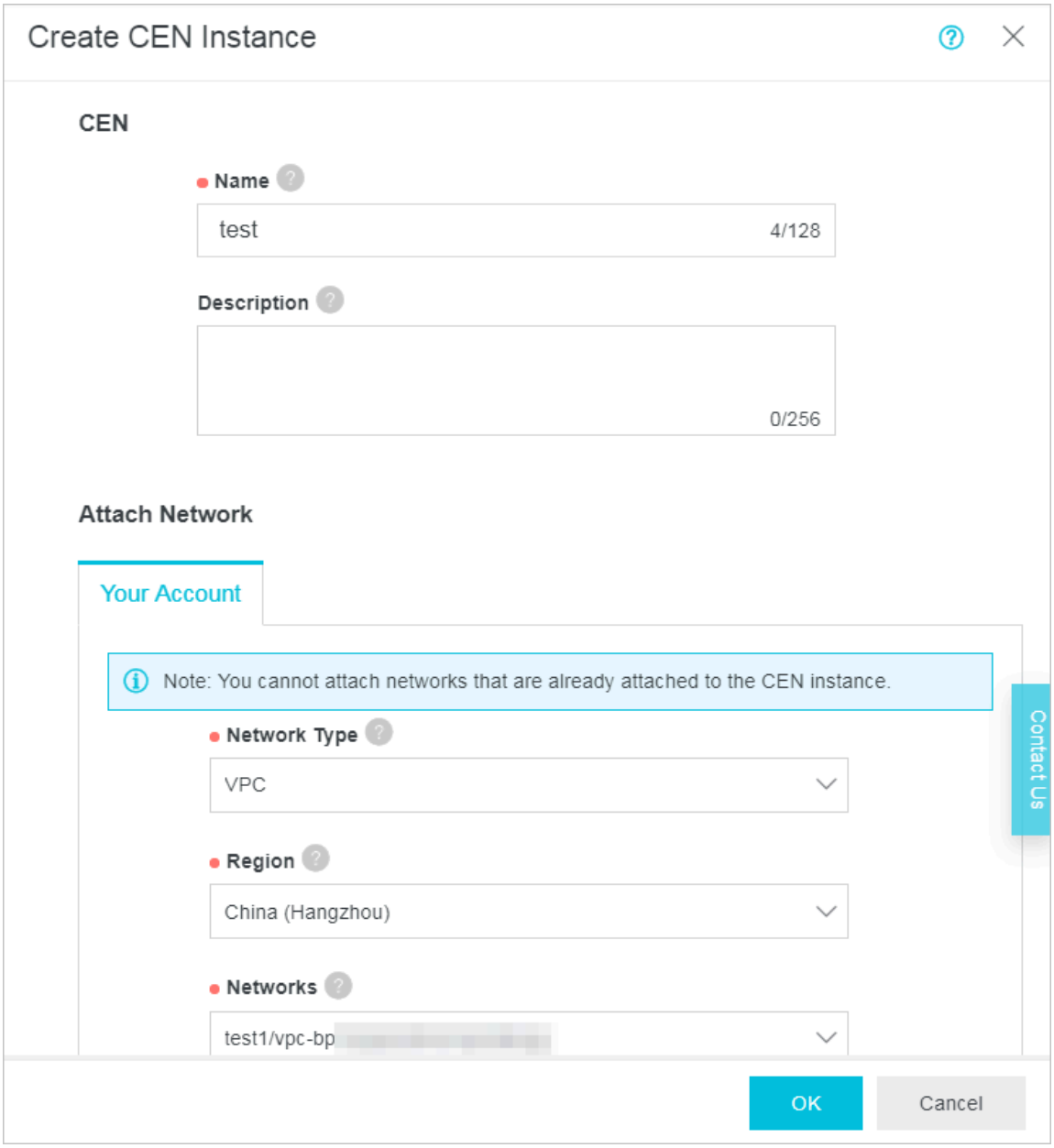
   c) Attach a network under the same account to the CEN instance.

      When you create a CEN instance, you can directly attach a network under the same account to the CEN instance. The network can be a VPC, a Virtual Border Router (VBR), or a Cloud Connect Network (CCN). The networks attached to the CEN instance can communicate with each other through the intranet.

       Note:

Make sure that the network to attach is not attached to other CEN instances.

d) Click OK.



# 4 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.

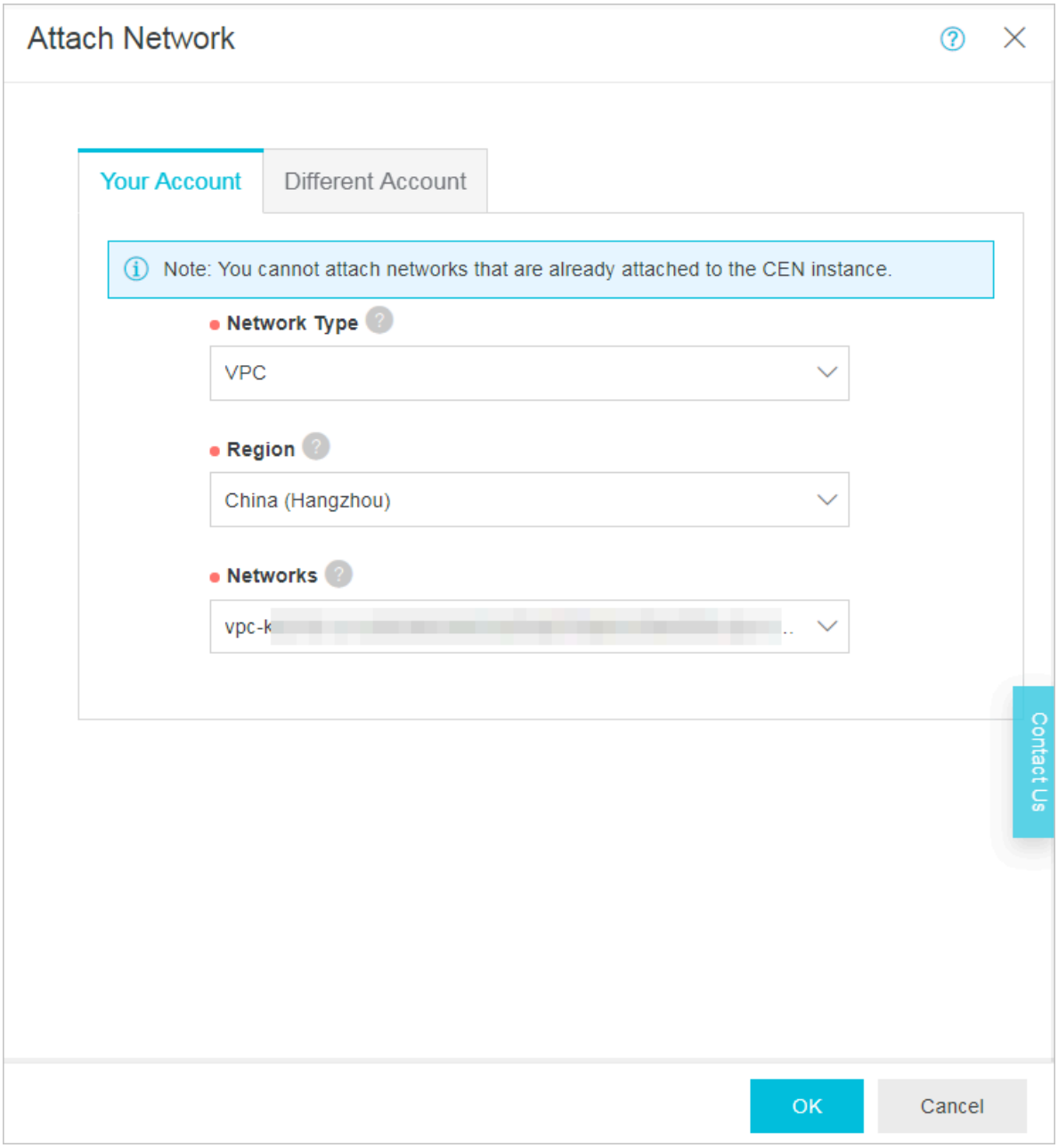
## Attach a network in the same account

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:

- #unique_8/unique_8_Connect_42_section_mkn_v7p_lgn

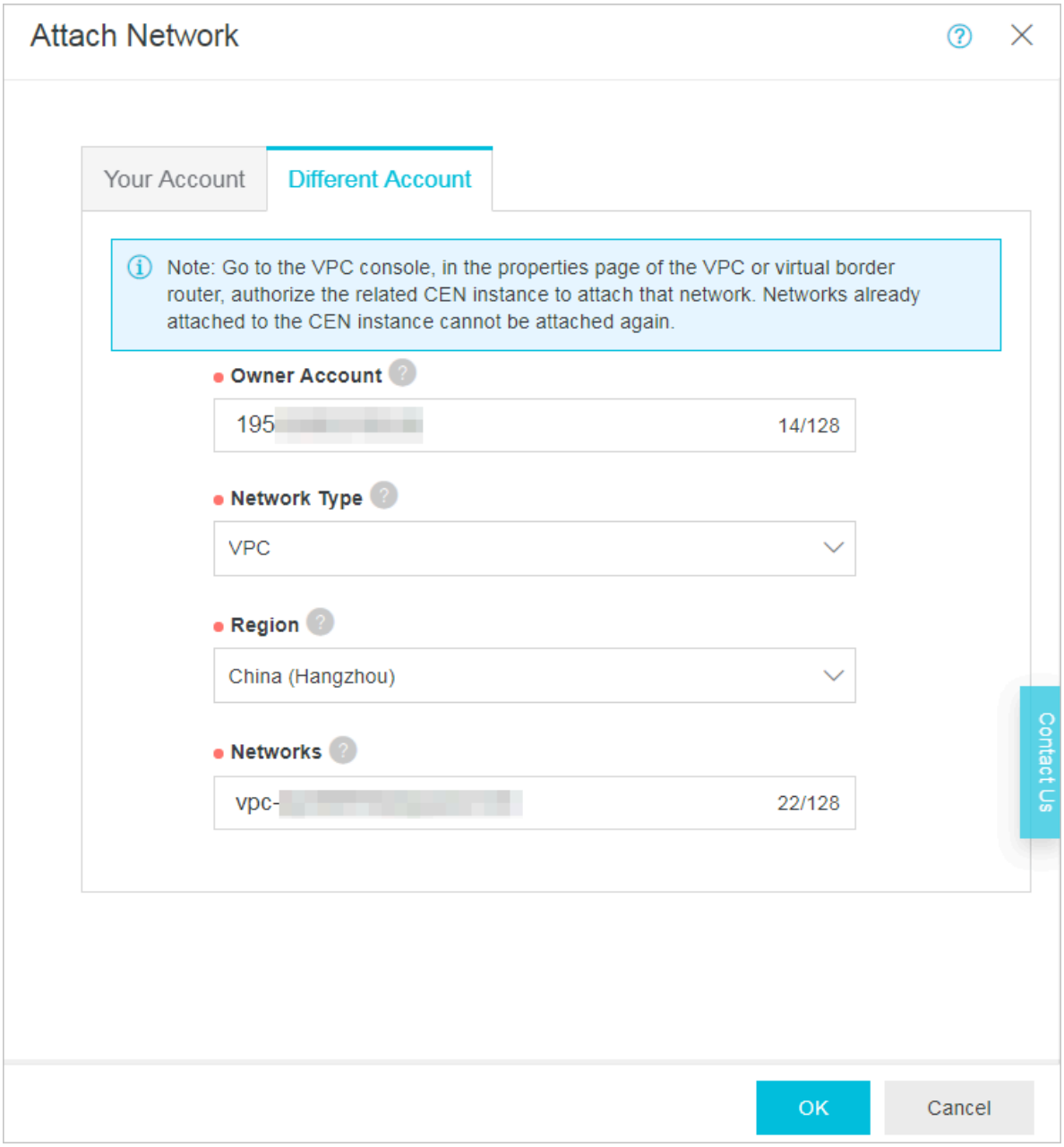
- #unique_8/unique_8_Connect_42_section_2kc_03o_0us
- #unique_8/unique_8_Connect_42_section_gs1_agk_3o9

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.




9. Click OK.

# 5 Set a cross-region connection bandwidth

This topic describes how to set a cross-region connection bandwidth. By setting a cross-region connection bandwidth, you can connect network instances across different regions through the intranet.

## Prerequisites

Attach networks

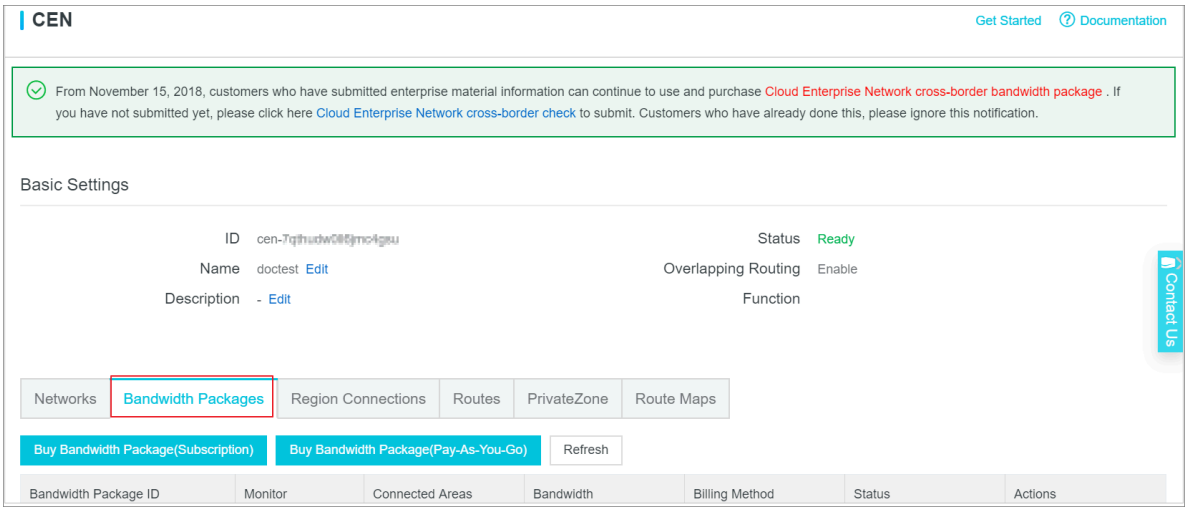
## Context

You do not need to configure a bandwidth package or pay for network instance connections in the same region. Additionally, you must purchase a bandwidth package if you want to connect network instances across different regions. When you purchase a bandwidth package, you need to specify the areas then set the bandwidth for the regions that you want to interconnect through the intranet.

## Purchase a bandwidth package

To purchase a bandwidth package, 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. On the CEN page, click Bandwidth Packages.




4. Click Buy Bandwidth Package (Subscription).
5. CEN ID: Select the CEN instance for which you want to purchase a bandwidth packet.

6. Select the areas to be interconnected.

   An area consists of one or more Alibaba Cloud regions. After you purchase a bandwidth package and set a cross-region interconnection bandwidth for two areas, network instances in the regions of these two areas can communicate with each other.

   > Notice:
   > After you purchase the bandwidth package, the interconnection areas cannot be modified.

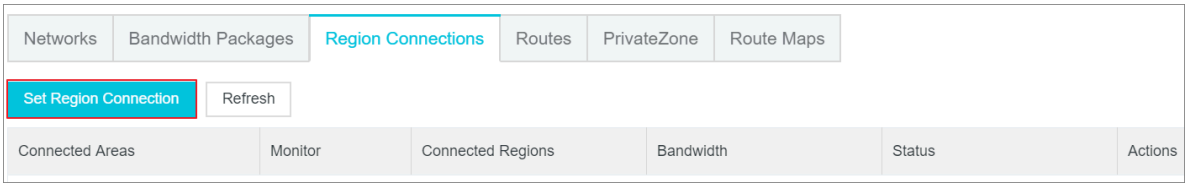
| Area | Included regions |
| --- | --- |
| Mainland China | China (Qingdao), China (Beijing), China (Zhangjiakou), China (Shenzhen), China (Hangzhou), China (Shanghai), China (Hohhot) |
| North America | US (Silicon Valley), US (Virginia) |
| Asia Pacific | China (Hong Kong), Singapore, Malaysia (Kuala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

7. Set the bandwidth of the bandwidth package.
8. Enter a name for the bandwidth package.
9. Select a duration, and then select Auto Renew or not.
10. Click Buy Now and complete the payment.

## Set a cross-region connection bandwidth

To set a cross-region connection bandwidth, complete 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. On the CEN page, click Region Connections, and then click Set Region Connection.




4. Bandwidth Packages: Select the bandwidth package that you purchased.

5. Connected Regions: select two regions to be interconnected.
6. Bandwidth: Set a bandwidth for the selected regions.

> Note:
> The default bandwidth is 1 Kbit/s, which is only used to test the connectivity between the selected regions. We recommend that you set the bandwidth according to your specific needs. The sum of all the connection bandwidth values cannot exceed the bandwidth value of the bandwidth package.

7. Click OK.

# 6 Test network connectivity

This topic describes how to test the network connectivity between two network instances attached to a CEN instance.

## Prerequisites

A cross-region connection bandwidth is configured for the network instances if the two network instances belong to different regions. For more information, see #unique_12.

## Context

The following table describes two ECS instances (ECS 1 and ECS 2) that are used as examples in this procedure.

| Configuration | ECS 1 | ECS 2 |
| --- | --- | --- |
| Private IP address | 192.168.1.41 | 192.168.136.60 |
| Region | China (Shanghai) | China (Hangzhou) |

## Procedure

1. Log on to ECS 2.
2. Ping the private IP address of ECS 1 to check whether the connection between ECS 1 and ECS 2 is successful.

```
C:\Users\Administrator>ping 192.168.1.41

Pinging 192.168.1.41 with 32 bytes of data:
Reply from 192.168.1.41: bytes=32 time<1ms TTL=128
Reply from 192.168.1.41: bytes=32 time<1ms TTL=128
Reply from 192.168.1.41: bytes=32 time<1ms TTL=128
Reply from 192.168.1.41: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.41:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

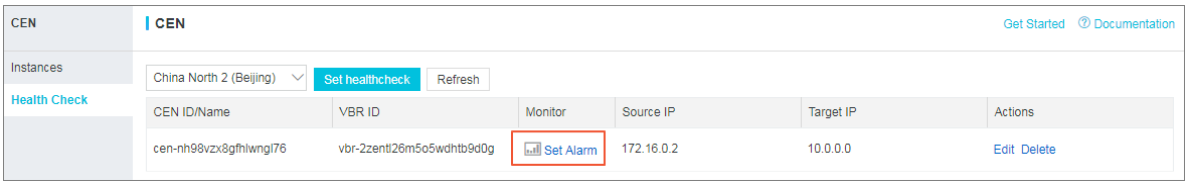
# 7 Set alarms

You can set alarm rules for physical connections, bandwidth packages and region connection traffic to monitor the usage of these resources and avoid the influence on services when any resource limit is reached.

## Set alarm rules for a physical connection

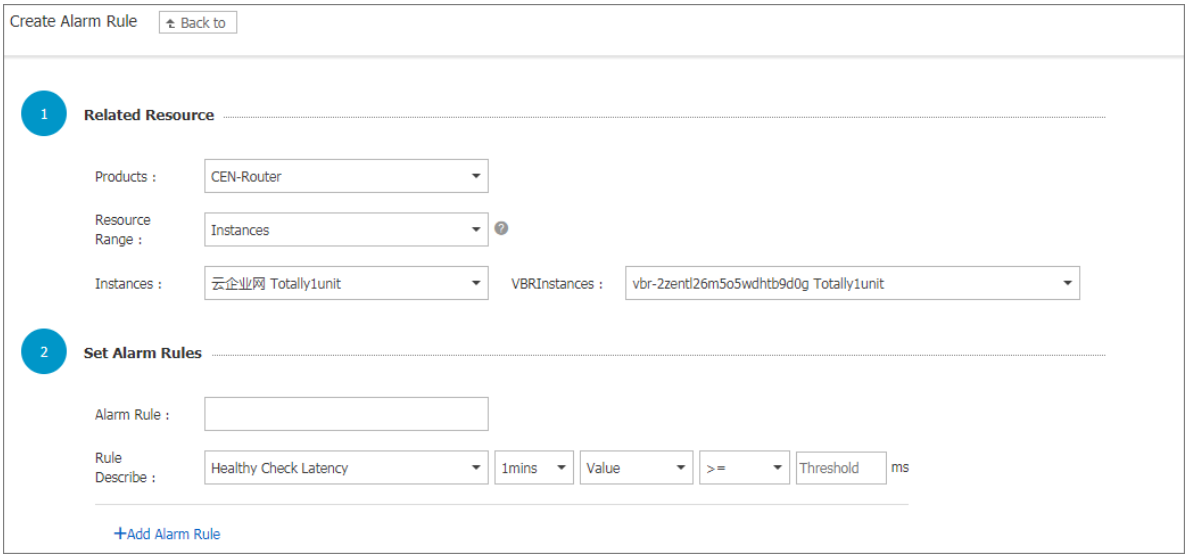
To set alarm rules for a physical connection configured with health checks, follow these steps:

1. Log on to the CEN console.
2. In the left-side navigation pane, click Health Check.
3. Select the region of the target CEN instance and click Set Alarm.




4. Configure one or more alarm rules.

   You can set alarm rules for latency, packet loss, inbound bandwidth, or outbound bandwidth and customize the thresholds that trigger the alarms.

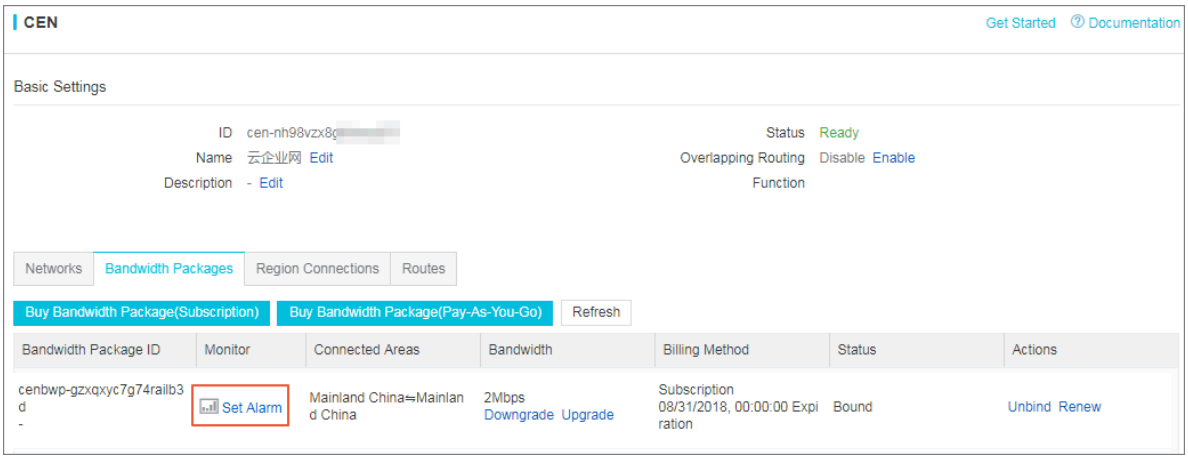



## Set alarm rules for a bandwidth package

To set alarm rules for a bandwidth package of a CEN instance, follow these steps:

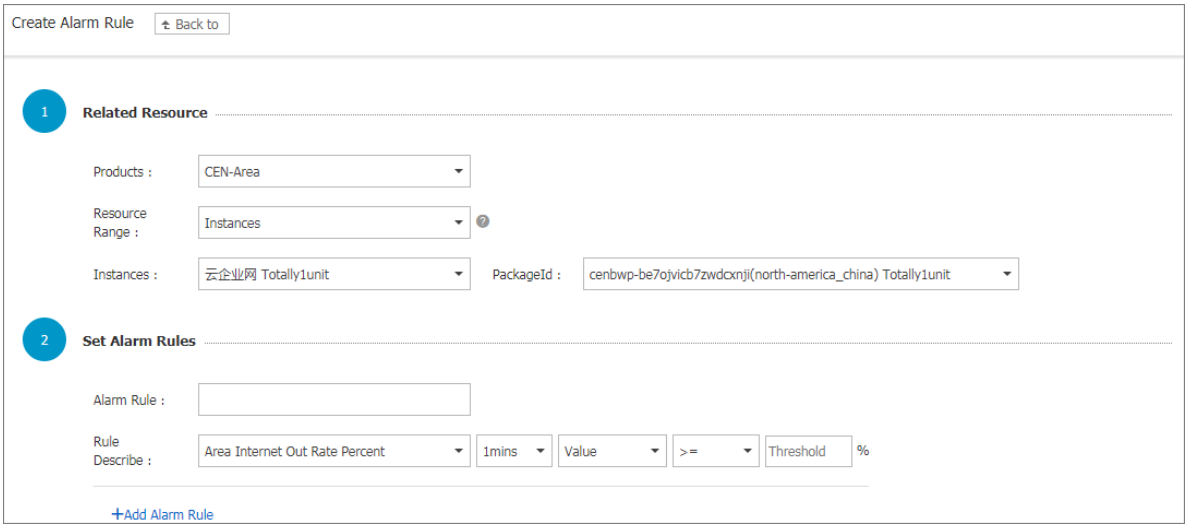
1. Log on to the CEN console.

2. Click the ID of the target CEN instance and then click the Bandwidth Packages tab.
3. Find the target bandwidth package and then click Set Alarm.




4. Configure one or more alarm rules.

   You can set alarm rules for area-to-area connection bandwidth or area-to-area connection bandwidth ratio, and customize the thresholds that trigger the alarms.

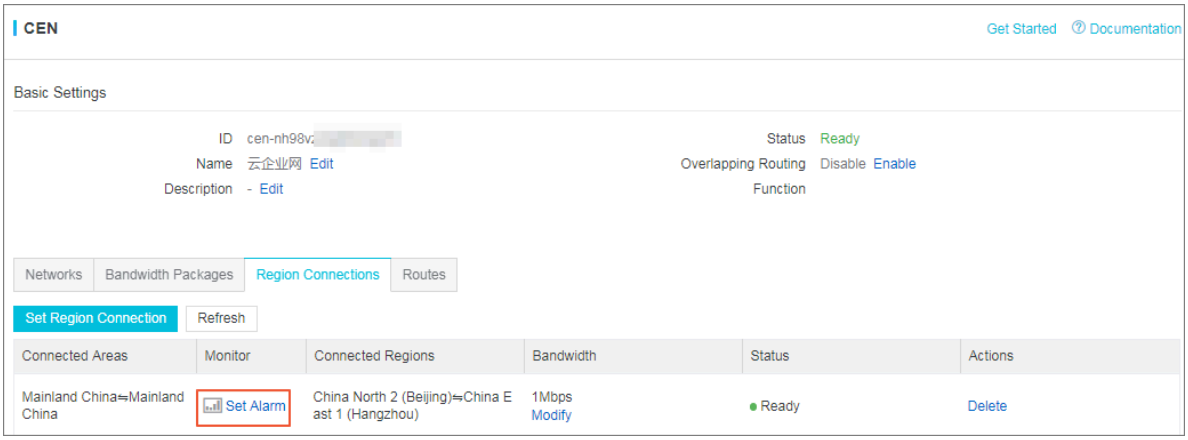



## Set alarm rules for a region connection

To set alarm rules for a region connection, follow these steps:

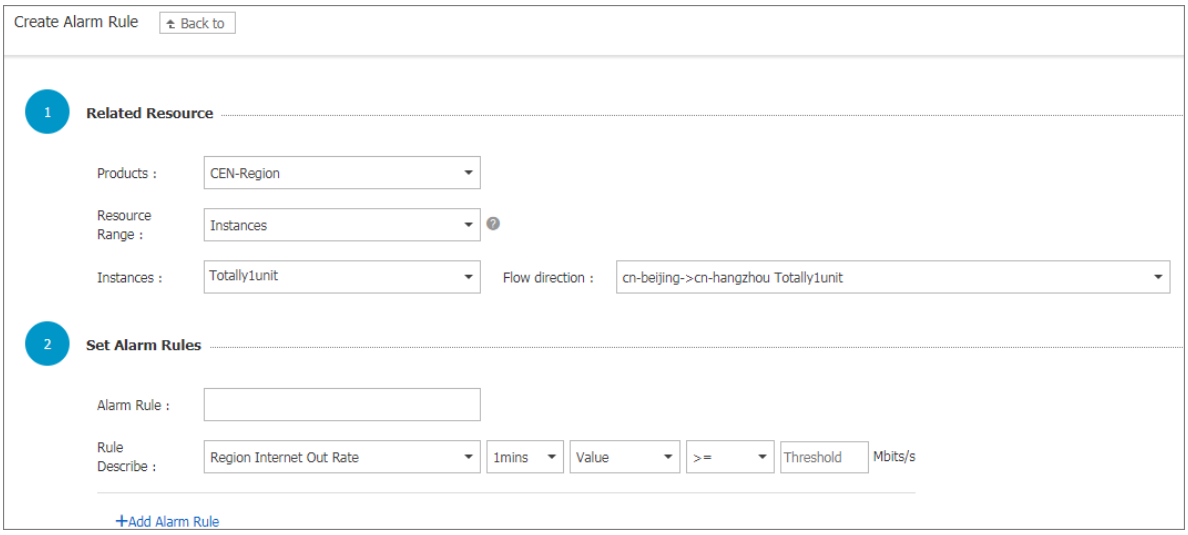
1. Log on to the CEN console.
2. Click the ID of the target CEN instance and then click the Region Connections tab.

3. Find the target region connection and then click Set Alarm.




4. Configure one or more alarm rules.

   You can set alarm rules for outbound bandwidth or outbound bandwidth ratio of connected regions, and customize the thresholds that trigger the alarms.



# 8 Advanced configurations

This topic describes the advanced configurations of a Cloud Enterprise Network (CEN). You can use the advanced configurations to manage your private networks.

A CEN provides the following advanced configurations:

- Access to cloud services

  Network instances attached to a CEN instance can access the PrivateZone service through the CEN instance. For more information, see #unique_15.
- Route map

  By using the route map function, you can filter route information and modify route attributes to manage the communication between network instances attached to a CEN instance. For more information, see #unique_16.
- High availability

  You can establish high-availability hybrid cloud networks by using health check, physical connections, VPN Gateways, and other Alibaba Cloud products.