Cloud Connect

User Guide

Issue 01

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Cloud Connection Operation Guide

1.1 Permissions Management

1.1.1 Creating a User and Granting Permissions for Cloud Connections

Use IAM to implement fine-grained permissions control for your Cloud Connect resources. With IAM, you can:

- Create IAM users for employees based on your enterprise's organizational structure. Each IAM user will have their own security credentials for accessing Cloud Connect resources.
- Grant only the permissions required for users to perform a specific task.
- Delegate a Huawei Cloud account to manage or a cloud service to access your Cloud Connect resources.

Skip this part if you do not require individual IAM users for refined permissions management.

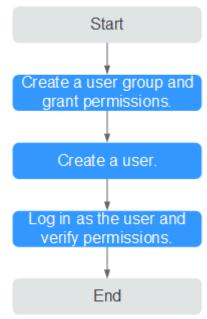
Figure 1-1 shows the process of granting permissions.

Prerequisites

Before you assign permissions to a user group, you need to know the permissions that you can assign to the user group and select permissions based on service requirements. For details about the system permissions, see **Permissions**. For the system policies of other services, see **System Permissions**.

Process Flow

Figure 1-1 Process of granting permissions



- 1. Create a user group and assign permissions (the Cross Connect Administrator policy used as an example).
- 2. Create an IAM user and add it to the user group.
- 3. Log in and verify permissions.

After logging in to the Cloud Connect console using the user's credentials, verify that the user has all permissions for Cloud Connect resources.

- In the service list, choose Networking > Cloud Connect. Click Create
 Cloud Connection in the upper right corner. If the cloud connection can be created, the Cross Connect Administrator policy has taken effect.
- Choose any other service in the service list. A message will appear indicating that you have sufficient permissions to access the service.

1.1.2 Cloud Connection Custom Policy

Custom policies can be created to supplement the system-defined policies.

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Edit JSON policies from scratch or based on an existing policy.

For details, see **Creating a Custom Policy**. The following are examples custom policies.

Example Custom Policies

Example 1: Allowing users to delete cloud connections
 {
 "Version": "1.1",

```
"Statement": [
{
    "Effect": "Allow",
    "Action": [
        "cc:cloudConnections:delete"
    ]
    }
]
```

• Example 2: Denying bandwidth package deletion

A policy with only "Deny" permissions must be used in conjunction with other policies to take effect. If the permissions granted to an IAM user contain both "Allow" and "Deny", the "Deny" permissions take precedence over the "Allow" permissions.

The following method can be used if you need to assign permissions of the **CC FullAccess** policy to a user but also forbid the user from deleting bandwidth packages. Create a custom policy and assign both policies to the group that the user belongs to. Then the user can perform all operations on Cloud Connect resources except deleting bandwidth packages. The following is an example of a deny policy:

• Example 3: Defining permissions for multiple services in a policy

A custom policy can contain the actions of multiple services that are of the global or project-level type. The following is an example policy containing actions of multiple services:

```
"Version": "1.1",
"Statement": [
     "Effect": "Allow",
      "Action": [
         "cc:bandwidthPackages:create",
         "cc:cloudConnections:create",
        "cc:bandwidthPackages:delete".
        "cc:cloudConnections:delete"
     ]
      "Effect": "Allow",
      "Action": [
        "eps:enterpriseProjects:enable",
        "eps:enterpriseProjects:update",
        "eps:enterpriseProjects:create",
         "eps:enterpriseProjects:delete"
     ]
  }
]
```

1.1.3 Permission Policy Configuration Examples

You can configure permission policies for different IAM users based on service requirements.

Example 1: Allowing an IAM User Who Is Not in Any Enterprise Projects to Have All Cloud Connection Permissions

An IAM user who is not in any enterprise projects wants to have all Cloud Connect permissions, for example, performing operations on Cloud Connect resources such as network instances, bandwidth packages, inter-region bandwidths, and routes, and operations such as cross-border permit application and cross-account authorization.

To grant the permissions to this IAM user, perform the following operations:

- 1. Log in to the management console.
- 2. On the homepage, hover over the username in the upper right corner and choose **Identity and Access Management** from the drop-down list.

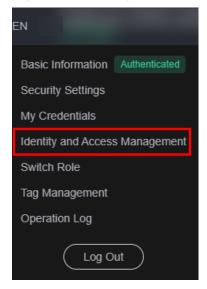


Figure 1-2 Identity and Access Management

- 3. In the navigation pane on the left, choose **User Groups**.
- 4. In the upper right corner, click **Create User Group**.

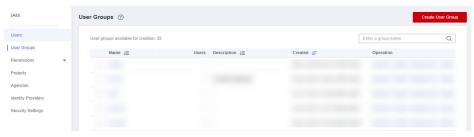


Figure 1-3 Creating a user group

5. Configure the parameters and click **OK**.

Name test01

Description Enter a brief description.

OK Cancel

Figure 1-4 Configuring user group parameters

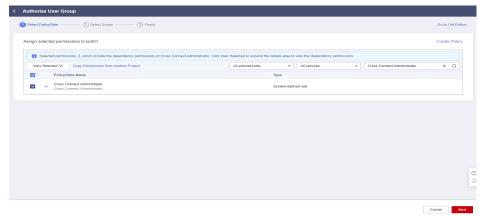
- 6. Locate the created user group and click its name.
- 7. Click **By IAM Project** on the right and then click **Authorize**.

Figure 1-5 Authorizing a user group



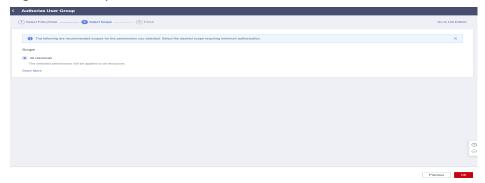
- 8. Enter Cross Connect Administrator in the text box and click the search icon.
- 9. In the search result, select Cross Connect Administrator and click Next.

Figure 1-6 Selecting a system-defined role



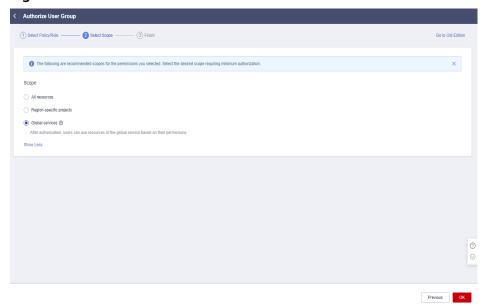
10. Click Show More.

Figure 1-7 Scope



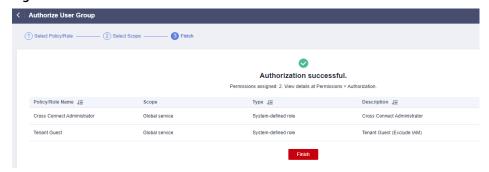
11. Select Global services and click OK.

Figure 1-8 Global services



If "Authorization successful" is displayed, the authorization is complete. The authorization will take effect about 15 to 30 minutes later.

Figure 1-9 Authorization successful



12. Go back to the user group list, locate the created user group, and click **Manage User** in the **Operation** column.

Figure 1-10 Manage User



13. Select the IAM user you want to add to the user group and click **OK**.

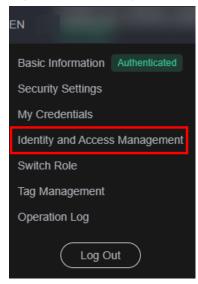
Example 2: Authorizing an IAM User to Use Cloud Connect in All Enterprise Projects

An IAM user needs to perform operations on Cloud Connect resources, such as network instances, bandwidth packages, inter-region bandwidths, and routes, in all enterprise projects. You can perform the operations below to grant the corresponding permissions to this IAM user.

To grant the permissions on cross-account authorization and cross-border permit application, perform the operations in Example 1: Allowing an IAM User Who Is Not in Any Enterprise Projects to Have All Cloud Connection Permissions.

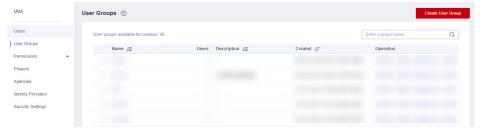
- 1. Log in to the management console.
- 2. On the homepage, hover over the username in the upper right corner and choose **Identity and Access Management** from the drop-down list.

Figure 1-11 Identity and Access Management



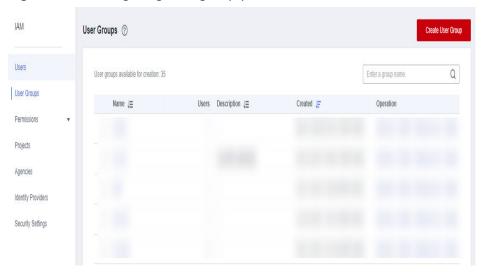
- 3. In the navigation pane on the left, choose **User Groups**.
- 4. In the upper right corner, click **Create User Group**.

Figure 1-12 Creating a user group



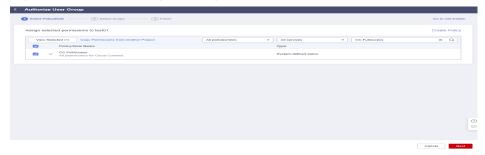
5. Configure the parameters and click **OK**.

Figure 1-13 Configuring user group parameters



- 6. Locate the created user group and click its name.
- 7. Click **By IAM Project** on the right and then click **Authorize**.

Figure 1-14 Authorizing a user group



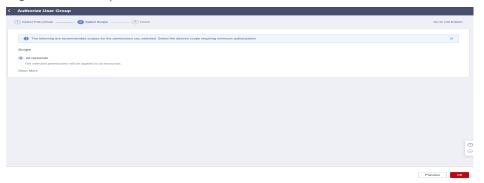
- 8. Enter **CC FullAccess** in the text box and click the search icon.
- 9. In the search result, select **CC FullAccess** and click **Next**.

Cancel | Matt

Figure 1-15 Selecting a system-defined policy

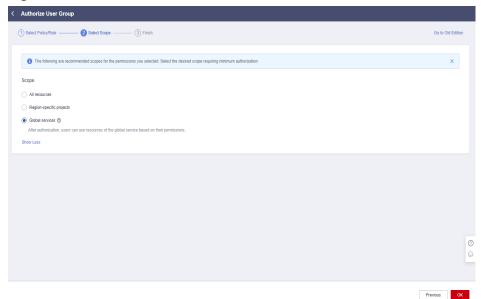
10. Click **Show More**.

Figure 1-16 Scope



11. Select Global services and click OK.

Figure 1-17 Global services



12. Go back to the user group list, locate the created user group, and click **Manage User** in the **Operation** column.

Figure 1-18 Manage User



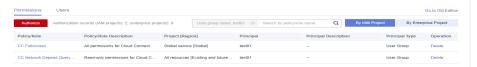
13. Select the IAM user you want to add to the user group and click **OK**.

■ NOTE

If the IAM user does not have VPC-related permissions, you can grant the **CC Network Depend QueryAccess** permissions for the user group that the IAM user belongs to and select **All resources** for **Scope**.

You can view the authorization in the **Permissions** tab.

Figure 1-19 Permissions



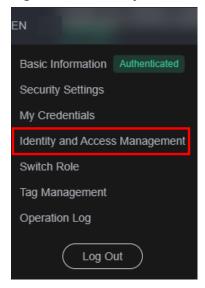
Example 3: Authorizing an IAM User to Use Cloud Connect in a Specific Enterprise Project

An IAM user needs to perform operations on Cloud Connect resources such as network instances, bandwidth packages, inter-region bandwidths, and routes, in specific enterprise projects. You can perform the operations below to grant the corresponding permissions to this IAM user.

To grant the permissions on cross-account authorization and cross-border permit application, perform the operations in Example 1: Allowing an IAM User Who Is Not in Any Enterprise Projects to Have All Cloud Connection Permissions.

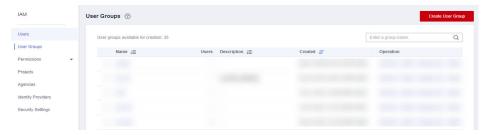
- 1. Log in to the management console.
- 2. On the homepage, hover over the username in the upper right corner and choose **Identity and Access Management** from the drop-down list.

Figure 1-20 Identity and Access Management



- 3. In the navigation pane on the left, choose **User Groups**.
- 4. In the upper right corner, click **Create User Group**.

Figure 1-21 Creating a user group



5. Configure the parameters and click **OK**.

Name test01

Description Enter a brief description.

OK Cancel

Figure 1-22 Configuring user group parameters

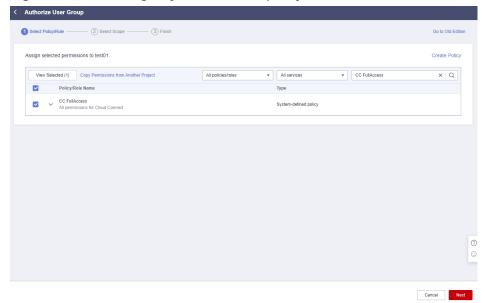
- 6. Locate the created user group and click its name.
- 7. Click **By IAM Project** on the right and then click **Authorize**.

Figure 1-23 Authorizing a user group



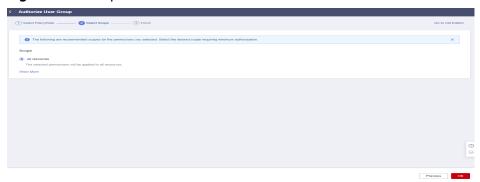
- 8. Enter **CC FullAccess** in the text box and click the search icon.
- 9. In the search result, select **CC FullAccess** and click **Next**.

Figure 1-24 Selecting a system-defined policy



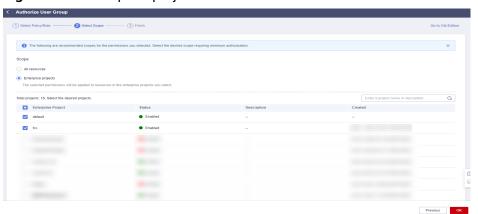
10. Click **Show More**.

Figure 1-25 Scope



- 11. Select **Enterprise projects**.
- 12. Select an enterprise project and click **OK**.

Figure 1-26 Enterprise projects



13. In the navigation pane on the left, choose **Permissions** > **Policies/Roles**.

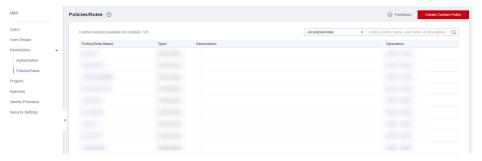
Users
User Groups
User Groups

Authorization
Policies/Roles
Projects
Agencies
Identity Providers
Security Settings

Figure 1-27 Policies/Roles

14. Click Create Custom Policy.

Figure 1-28 Creating a custom policy



15. Configure the parameters based on Table 1-1.

Table 1-1 Custom policy parameters

Parameter	Description
Policy Name	Specifies the name of the custom policy.
Policy View	(Recommended) Visual editorJSON
Policy Content	 Select Allow. Cloud service: Cloud Connect Actions: ReadOnly: Select cc:networkInstances:get, cc:interRegionBandwidths:get, and cc:cloudConnectionRoutes:get. ReadWrite: Select the following: cc:networkInstances:create cc:interRegionBandwidths:update cc:networkInstances:delete cc:interRegionBandwidths:create cc:interRegionBandwidths:delete cc:networkInstances:update ListOnly: Select cc:cloudConnectionRoutes:list, cc:networkInstances:list, and cc:interRegionBandwidths:list.

- 16. Configure other parameters and click **OK**.
- 17. Repeat steps 3 to 7.
- 18. Search for the created custom policy by name.
- 19. Select the custom policy and click **Next**.
- 20. Click **Show More**.
- 21. Select Global services and click OK.

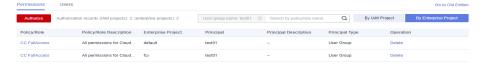
If the IAM user does not have VPC-related permissions, you can grant the **CC Network Depend QueryAccess** permissions for the user group that the IAM user belongs to and select **All resources** for **Scope**.

You can view the authorization in the **Permissions** tab.

Figure 1-29 Authorization records in the IAM project view



Figure 1-30 Authorization records in the enterprise project view



1.1.4 Managing the Cloud Connect Service Disclaimer

Scenarios

To provide cross-region communication, Cloud Connect will obtain and transmit your credential and account ID from the Chinese mainland to the country or region where the network instances you want to connect to are running for identity verification and authentication.

The credential and account ID is required only for providing services for you. If you need to use Cloud Connect for communication, read and agree to the Cloud Connect Service Disclaimer.

If you do not need Cloud Connect for communication, you can **reject the disclaimer**.

Agreeing to the Disclaimer

- 1. Go to the **Cloud Connections** page.
- 2. In the upper left corner of the page, click **Accept Disclaimer**.
- 3. In the displayed dialog box, select I have read and agree to the Cloud Connect Service Disclaimer.
- 4. Click **OK**.

Rejecting the Disclaimer

- 1. Go to the **Cloud Connections** page.
- 2. In the upper left corner of the page, click **Reject Disclaimer**.
- In the displayed dialog box, click OK.

1.2 Cloud Connections

1.2.1 Creating a Cloud Connection

Scenarios

You need a cloud connection to connect the VPCs that you want to access.

□ NOTE

For details about the regions where cloud connections are available, see **Region Availability**.

- 1. Go to the **Cloud Connections** page.
- 2. In the upper right corner of the page, click **Create Cloud Connection**.
- 3. Configure the parameters based on Table 1-2.

Table 1-2 Parameters for creating a cloud connection

Parameter	Description	
Name	Specifies the cloud connection name.	
Enterprise Project	Specifies the enterprise project for managing the cloud connection.	
	An enterprise project facilitates project-level management and grouping of cloud resources and users. The name of the default project is default .	
	For details about creating and managing enterprise projects, see the Enterprise Management User Guide .	
Scenario	Specifies whether the cloud connection is used to connect VPCs or enterprise routers.	
	If you select VPC here, only VPCs or virtual gateways can use this cloud connection.	
Tag	Identifies the cloud connection. A tag consists of a key and a value. You can add 20 tags to a cloud connection.	
	The tag key and value must meet the requirements listed in Table 1-3 .	
	NOTE If you have configured tag policies for Cloud Connect, add tags to cloud connections based on the tag policies. If you add a tag that does not comply with the tag policies, cloud connections may fail to be created. Contact your administrator to learn more about tag policies.	

Parameter	Description
Description	(Optional) Provides supplementary information about the cloud connection.
	The description can contain no more than 255 characters and cannot contain angle brackets (<>).

Table 1-3 Tag naming requirements

Parameter	Requirements	
Tag key	For each resource, each tag key must be unique, and each tag key can only have one tag value.	
	Cannot be left blank.	
	Can contain no more than 128 characters.	
	Can contain letters in any language, digits, spaces, underscores (_), periods (.), colons (:), equal signs (=), plus signs (+), minus signs (-), and at signs (@).	
	Cannot start with _sys_ or a space or end with a space.	
Tag value	Can be left blank.	
	Can contain no more than 255 characters.	
	 Can contain letters in any language, digits, spaces, underscores (_), periods (.), colons (:), slashes (/), equal signs (=), plus signs (+), minus signs (-), and at signs (@). 	
	Cannot start or end with a space.	

4. Click **OK**.

1.2.2 Viewing a Cloud Connection

Scenarios

You can view details about a cloud connection you have created.

- 1. Go to the **Cloud Connections** page.
- 2. View all cloud connections you have created.
- 3. Locate the cloud connection you want to view and click its name to view the details, such as the basic information, network instances, bandwidth packages, inter-region bandwidths, routes, and tags.

1.2.3 Modifying a Cloud Connection

Modifying Cloud Connection Details

Scenarios

You can modify the name and description of a cloud connection.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Locate the cloud connection you want to modify and click **Modify** in the **Operation** column.
- 3. In the displayed dialog box, modify the name and description of the cloud connection.
- 4. Click OK.

Modifying the Bandwidth

Scenarios

You can change the bandwidth of a bandwidth package bound to a cloud connection.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Bandwidth Packages** tab.
- 4. Locate the bandwidth package and click **Modify Bandwidth** in the **Operation** column.
- 5. In the displayed dialog box, select **Upgrade** or **Downgrade** and click **Continue**.
- 6. On the **Modify Bandwidth** page, set the new bandwidth and click **OK**.
- 7. Confirm the bandwidth package information and click **Submit**.
- 8. Select a payment method and click **OK**.

1.2.4 Deleting a Cloud Connection

Scenarios

You can delete a cloud connection you no longer need.

- 1. Go to the **Cloud Connections** page.
- 2. Locate the cloud connection you want to delete and click **Delete** in the **Operation** column.

NOTICE

If network instances have been loaded to a cloud connection, it cannot be deleted. Delete all network instances loaded to the cloud connection first. For details about how to delete a network instance, see **Removing a Network Instance from a Cloud Connection**.

3. In the displayed dialog box, click **OK**.

1.2.5 Unbinding a Bandwidth Package

Scenarios

If you do not need a bandwidth package, you can unbind it from the cloud connection.

Prerequisites

All inter-region bandwidths assigned based on the bandwidth package have been deleted. For details about how to delete an inter-region bandwidth, see **Deleting an Inter-Region Bandwidth**.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Bandwidth Packages** tab.
- 4. Locate the bandwidth package you want to unbind and click **Unbind** in the **Operation** column.
- 5. In the displayed dialog box, click **OK**.

1.2.6 Managing Cloud Connection Tags

Scenarios

After a cloud connection is created, you can view its tags or add, edit or delete a tag.

A tag is the identifier of a cloud connection and consists of a key and a value. You can add 20 tags to a cloud connection.

If you have configured tag policies for Cloud Connect, add tags to cloud connections based on the tag policies. If you add a tag that does not comply with the tag policies, cloud connections may fail to be created. Contact your administrator to learn more about tag policies.

■ NOTE

If a predefined tag has been created on TMS, you can directly select the corresponding tag key and value.

For details about predefined tags, see **Predefined Tags**.

Adding a Tag

Add a tag to an existing cloud connection.

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Tags** tab.
- 4. In the displayed dialog box, enter a key and a value.

Table 1-4 describes the tag key and value requirements.

Table 1-4 Tag naming requirements

Parameter	Requirements	
Tag key	For each resource, each tag key must be unique, and each tag key can only have one tag value.	
	Cannot be left blank.	
	Can contain no more than 128 characters.	
	• Can contain letters in any language, digits, spaces, underscores (_), periods (.), colons (:), equal signs (=), plus signs (+), minus signs (-), and at signs (@).	
	Cannot start with _sys_ or a space or end with a space.	
Tag value	Can be left blank.	
	Can contain no more than 255 characters.	
	 Can contain letters in any language, digits, spaces, underscores (_), periods (.), colons (:), slashes (/), equal signs (=), plus signs (+), minus signs (-), and at signs (@). 	
	Cannot start or end with a space.	

5. Click **OK**.

Editing a Tag

Modify the value of a tag added to a cloud connection.

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Tags** tab.
- 4. Locate the tag and click **Edit** in the **Operation** column.
- 5. Enter a new value.
- 6. Click OK.

Deleting a Tag

Delete a tag from a cloud connection.

! CAUTION

Deleted tags cannot be recovered.

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Tags** tab.
- 4. Locate the tag and click **Delete** in the **Operation** column.
- 5. Click **OK**.

1.3 Cross-Border Permits

1.3.1 Applying for a Cross-Border Permit

Scenarios

In accordance with the laws and administrative regulations of the Ministry of Industry and Information Technology (MIIT) of the People's Republic of China, only three major operators in the Chinese mainland are allowed for cross-border communication, and a cross-border permit is required if you carry out business activities outside the Chinese mainland.

You need to apply for a cross-border permit only when a VPC to be connected is outside the Chinese mainland.

Procedure

- 1. Go to the **Bandwidth Packages** page.
- 2. On the displayed page, click **apply now**.

If the registered address of your business entity is in the Chinese mainland, click **here** to go to the **Cross-Border Service Application System** page.

If the registered address of your business entity is outside the Chinese mainland, click **here** to go to the **Cross-Border Service Application System** page.

□ NOTE

Select the address for applying for the cross-border permit based on the registration address of your business entity.

3. On the displayed page, select an applicant type, configure the parameters as prompted, and upload the required materials.

NOTICE

Prepare and upload the materials required on the application page.

Table 1-5 Online cross-border permit application

Parameter	Description	
Applicant Name	The applicant name must be the same as the company name in the <i>Letter of Commitment to Information Security</i> .	
Huawei Cloud UID	The account ID to log in to the management console. You can take the following steps to obtain your account ID.	
	1. Log in to the management console.	
	2. Click the username in the upper right corner and select My Credentials from the drop-down list.	
	3. On the API Credentials page, view the Account ID .	
Bandwidth (Mbit/s)	For reference only	
Start Date	For reference only	
Termination Date	For reference only	
Customer Type	Select a type based on the actual situation.	
Country of the Customer	Country where the applicant is located.	
Contact Name	-	
Contact Number	-	
Type of ID	-	
ID Number	-	
Scope of Business	Briefly describe the main business.	
Number of Employees	For reference only	
Branch Location Country	Country where the applicant branch is located. Set this parameter based on the actual situation.	

Table 1-6 Required materials

Paramet er	Description	Required Material	Sign atur e	Company Seal
Business License	Upload a photo of the business license with the official seal. For the position of the seal, see the template.	A scanned copy of your company's business license	-	√
Service Agreeme nt	Download the Huawei Cloud Cross-Border Circuit Service Agreement, fill in the blank, upload the copy of agreement with the signature and official seal. Sign the material on the signature block. Stamp the seal over the signature.	A scanned copy of the <i>Huawei Cloud</i> <i>Cross-Border</i> <i>Circuit Service</i> <i>Agreement</i>	√	√
Letter of Commit ment to Informat ion Security	Download the China Unicom Letter of Commitment to Information Security of the Cross-Border Circuit Service, fill in the blank, and upload the copy of the letter with the signature and seal. Sign the material on the signature block. Stamp the seal over the signature. Specify the bandwidth you estimated and your company name.	A scanned copy of the China Unicom Letter of Commitment to Information Security of the Cross-Border Circuit Service	✓	√

4. Click **Submit**.

1.3.2 Querying the Application Progress

Scenarios

You can query the progress of your cross-border permit application.

Procedure

- Go to the Bandwidth Packages page.
- 2. On the displayed page, click **you can view the approval progress** in the upper part of the page.
 - Alternatively, on the application page, click **Application Progress Enquiry** in the upper right corner.
- 3. On the **Self-inquiry System** page, enter the **Huawei Cloud ID** and **Contact Number** as prompted, and click **Query**.

1.4 Network Instances

1.4.1 Loading a Network Instance

Scenarios

Load the VPCs and virtual gateways to the cloud connection based on your network plan.

Constraints

To provide cross-region communication, Cloud Connect will obtain and transmit your credential and account ID from the Chinese mainland to the country or region where the network instances you want to connect to are running for identity verification and authentication.

The credential and account ID is required only for providing services for you. If you need to use Cloud Connect for communication, read and **agree to the Cloud Connect Service Disclaimer**.

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Network Instances** tab.
- 4. Click Load Network Instance.
 - If the network instance to be loaded is in your account that was used to create the cloud connection, select Current account.
 - Configure the parameters based on Table 1-7 and click OK.

Table 1-7 Parameters for loading a network instance to a cloud connection

Parameter	Description
Account	Specifies the account that provides the network instance.
	Select Current account .
Region	Specifies the region where the VPC you want to connect is located.
Instance Type	Specifies the type of the network instance that needs to be loaded to the cloud connection. There are two options: • VPC • Virtual gateway
	Select VPC .
VPC	Specifies the VPC you want to load to the cloud connection.
	This parameter is mandatory if you have set Instance Type to VPC .
VPC CIDR Block	Specifies the subnets in the VPC and custom CIDR blocks.
	If you have set Instance Type to VPC , you need to configure the following two parameters:
	Subnet: Select one or more subnets in the VPC.
	Other CIDR Block: Add one or more custom CIDR blocks as needed.
Remarks	Provides supplementary information about the network instance.

If the network instance is in another account, select Peer account.
 Configure the parameters based on Table 1-8 and click OK.

Table 1-8 Parameters for loading network instances across accounts

Parameter	Description
Account	Specifies the account that provides the network instance. Select Peer account .
	Select Feel account.
Peer Account ID	Specifies the ID of the other account.
Region	Specifies the region where the VPC you want to connect is located.

Parameter	Description
Peer Project ID	Specifies the project ID of the VPC in the other account.
Instance Type	VPC Specifies the type of the network instance that needs to be loaded to the cloud connection.
Peer VPC	Specifies the VPC to be loaded.
VPC CIDR Block	Specifies the subnets in the VPC you want to load and custom CIDR blocks.
Remarks	Provides supplementary information about the network instance.

- A network instance can only be loaded to one cloud connection.
- If a VPC is loaded, the associated virtual gateway cannot be loaded.
- 5. Click **Continue Loading** if you need to load another network instance. If you do not need to load another network instance now, close the dialog box and view the loaded network instance on the **Network Instances** tab.

1.4.2 Viewing a Network Instance

Scenarios

You can view details about a network instance that has been loaded to a cloud connection.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Network Instances** tab.
- 4. Click the name of the loaded network instance. In the lower right area of the page, view its details.

1.4.3 Modifying a Network Instance

Modifying a VPC

Scenarios

You can modify the subnets in the VPC that has been loaded to a cloud connection and custom CIDR blocks.

Procedure

1. Go to the **Cloud Connections** page.

- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Network Instances** tab.
- 4. Locate the VPC you want to modify and click its name.
- 5. In the lower right area of the page, click **Modify VPC CIDR Block**.
- 6. Modify the subnets and custom CIDR blocks.
- 7. Click OK.

Modifying a Virtual Gateway

Scenarios

You can modify the local subnets and remote subnets configured for a virtual gateway that has been loaded to a cloud connection

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Network Instances** tab.
- 4. Locate the virtual gateway you want to modify and click its name.
- 5. In the lower right area of the page, click **Modify Virtual Gateway CIDR Block**.
- 6. Modify the CIDR blocks.
- 7. Click **OK**.

1.4.4 Removing a Network Instance from a Cloud Connection

Removing a VPC

Scenarios

You can remove a VPC that does not need to communicate with other VPCs.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Network Instances** tab.
- 4. Locate the VPC you want to remove and click its name.
- 5. In the lower right area of the page, click **Remove**.
- 6. In the displayed dialog box, click **OK**.

Removing a Virtual Gateway

Scenarios

If an on-premises data center does not need to communicate with a VPC in another region, you can remove the virtual gateway associated with the VPC.

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Network Instances** tab.
- 4. Locate the virtual gateway you want to remove and click its name.
- 5. In the lower right area of the page, click **Remove**.
- 6. In the displayed dialog box, click **OK**.

1.5 Bandwidth Packages

1.5.1 Buying a Bandwidth Package

Scenarios

To enable normal communication between regions in the same geographic region or across geographic regions, you need to purchase a bandwidth package and bind it to a cloud connection.

Bandwidth packages are used when network instances to be loaded to a cloud connection are VPCs.

To allow you to test network connectivity between regions, Cloud Connect provides 10 kbit/s by default. To test network connectivity, you can ping an ECS in one VPC from an ECS in the other VPC.

No bandwidth packages are required if two VPCs are in the same region because they can communicate with each other by default after they are loaded to the same cloud connection.

Constraints

To provide cross-region communication, Cloud Connect will obtain and transmit your credential and account ID from the Chinese mainland to the country or region where the network instances you want to connect to are running for identity verification and authentication.

The credential and account ID is required only for providing services for you. If you need to use Cloud Connect for communication, read and **agree to the Cloud Connect Service Disclaimer**.

- Step 1 Go to the Buy Bandwidth Package page.
- **Step 2** Configure the parameters based on **Table 1-9** and click **Buy Now**.

Table 1-9 Parameters for buying a bandwidth package

Parameter	Description
Billing Mode	The only option is Yearly/Monthly . You can purchase it by year or month as needed.
Name	Specifies the bandwidth package name. The name can contain 1 to 64 characters. Only digits, letters, underscores (_), hyphens (-), and periods (.) are allowed.
Billed By	Specifies by what you want the bandwidth package to be billed.
Applicability	Specifies whether you want to use the bandwidth package for communication within a geographic region or between geographic regions. There are two options:
	Single geographic region: Use the bandwidth package between regions in the same geographic region.
	Across geographic regions: Use the bandwidth package between regions in different geographic regions.
Geographic Region	Specifies the geographic region(s).
Bandwidth	Specifies the bandwidth you require for communication between regions, in Mbit/s. The sum of all inter-region bandwidths you assign cannot exceed the total bandwidth of the bandwidth package. Assign the bandwidth based on your network plan. Unit: Mbit/s
Tag	Identifies the bandwidth package. A tag consists of a key and a value. You can add 20 tags to a bandwidth package.
	The tag key and value must meet the requirements listed in Table 1-10. NOTE If a predefined tag has been created on TMS, you can directly select the corresponding tag key and value. For details about predefined tags, see Predefined Tags.
Required Duration	Specifies how long you require the bandwidth package for.
	Auto renewal is supported.
Cloud Connection	Specifies the cloud connection you want to bind the bandwidth package to. There are two options: Bind now Bind later

Parameter	Requirements	
Tag key	For each resource, each tag key must be unique, and each tag key can only have one tag value. • Cannot be left blank.	
	Can contain no more than 128 characters.	
	• Can contain letters in any language, digits, spaces, underscores (_), periods (.), colons (:), equal signs (=), plus signs (+), minus signs (-), and at signs (@).	
	Cannot start with _sys_ or a space or end with a space.	
Tag value	Can be left blank.	
	Can contain no more than 255 characters.	
	• Can contain letters in any language, digits, spaces, underscores (_), periods (.), colons (:), slashes (/), equal signs (=), plus signs (+), minus signs (-), and at signs (@).	
	Cannot start or end with a space.	

Table 1-10 Tag naming requirements

- **Step 3** Confirm the configuration and click **Pay Now**.
- **Step 4** On the payment information page, click **Confirm**.

View the bandwidth package in the bandwidth package list. If the status changes to **Normal**, the purchase is successful.

----End

1.5.2 Modifying a Bandwidth Package

Scenarios

You can modify the bandwidth of a bandwidth package you have purchased. You can increase or decrease the bandwidth.

- Increasing the bandwidth
 Pay for the increased bandwidth. The new bandwidth will take effect after payment is complete.
- Decreasing the bandwidth
 If you decrease the bandwidth, the system will refund the overpayment to your account. The new bandwidth takes effect immediately.

The following procedure use bandwidth increase as an example.

- 1. Go to the **Bandwidth Packages** page.
- 2. Locate the bandwidth package and click **Modify Bandwidth** in the **Operation** column.

- 3. In the displayed dialog box, select **Upgrade** and click **Continue**.
- 4. On the **Modify Bandwidth** page, set the new bandwidth and click **OK**.
- 5. Confirm the bandwidth package information and click Submit.
- 6. Select a payment method and click **OK**.

1.5.3 Binding a Bandwidth Package to a Cloud Connection

Scenarios

Bind an existing bandwidth package to a cloud connection.

◯ NOTE

- One cloud connection can only have one bandwidth package regardless of if the cloud connection is used for communication within a geographic region or between geographic regions. For example, if network instances are in the Chinese mainland and Asia Pacific, your cloud connection can only have one bandwidth package.
- A bandwidth package can only be bound to one cloud connection.

Procedure

- 1. Go to the **Bandwidth Packages** page.
- 2. Locate the bandwidth package you want to bind and click **Bind** in the **Operation** column.
- 3. Select the cloud connection you want to bind the bandwidth package to.
- 4. Click OK.

1.5.4 Unbinding a Bandwidth Package from a Cloud Connection

Scenarios

If you do not need a bandwidth package any longer, you can unbind it from the cloud connection.

Prerequisites

All inter-region bandwidths assigned based on the bandwidth package have been deleted. For details about how to delete an inter-region bandwidth, see **Deleting an Inter-Region Bandwidth**.

- 1. Go to the **Bandwidth Packages** page.
- 2. Locate the bandwidth package you want to unbind and click **Unbind** in the **Operation** column.
- 3. In the displayed dialog box, click **OK**.

1.5.5 Changing a Pay-per-Use Bandwidth Package to a Yearly/ Monthly Bandwidth Package

Scenarios

Currently, pay-per-use billing is only for trial use. After this option is enabled, you can change a pay-per-use bandwidth package to a yearly/monthly bandwidth package.

Prerequisites

Your application for enabling the pay-per-use billing mode has been approved, and you have purchased a pay-per-use bandwidth package.

Procedure

- 1. Go to the **Bandwidth Packages** page.
- 2. Locate the bandwidth package and click **More** > **Change Billing Mode**.
- 3. In the displayed dialog box, click **OK**.
- 4. On the **Change Subscription** page, set the required duration and click **Pay**.
- 5. On the displayed page, select a payment method and click **OK**.

1.5.6 Unsubscribing from a Yearly/Monthly Bandwidth Package

Scenarios

You can unsubscribe from a yearly/monthly bandwidth package if you do not need it any longer. After you unsubscribe from the package, you will stop being charged for it.

Prerequisites

You have unbound the bandwidth package from the cloud connection. For details about how to unbind a bandwidth package from a cloud connection, see **Unbinding a Bandwidth Package from a Cloud Connection**.

- 1. Go to the **Bandwidth Packages** page.
- Locate the bandwidth package you want to unsubscribe from and choose
 More > Unsubscribe in the Operation column.
- 3. On the displayed page, confirm the resource and refund amount, select the unsubscription reason, and select I've backed up the data or confirmed that the unsubscribed resources are no longer needed. I understand that only resources in the recycle bin can be restored after unsubscription.
- 4. Click Unsubscribe.
- 5. In the displayed dialog box, click **Unsubscribe** to unsubscribe from the bandwidth package.

1.5.7 Deleting a Pay-per-Use Bandwidth Package

Scenarios

Currently, pay-per-use bandwidth packages can only be used for tests. You can delete a bandwidth package if you no longer need it. After deletion, you stop incurring charges for the bandwidth package.

Prerequisites

You have unbound the bandwidth package from the cloud connection. For details, see **Unbinding a Bandwidth Package from a Cloud Connection**.

Procedure

- 1. Go to the **Bandwidth Packages** page.
- 2. Locate the bandwidth package you want to delete and click **Delete** in the **Operation** column.
- 3. In the displayed dialog box, click **OK**.

1.5.8 Managing Bandwidth Package Tags

Scenarios

After a bandwidth package is purchased, you can view its tags or add, edit or delete a tag.

A tag is an identifier of a bandwidth package and consists of a key and a value. You can add 20 tags to a bandwidth package.

□ NOTE

If a predefined tag has been created on TMS, you can directly select the corresponding tag key and value.

For details about predefined tags, see Predefined Tags.

Adding a Tag

Add a tag to an existing bandwidth package.

- 1. Go to the **Bandwidth Packages** page.
- 2. Locate the bandwidth package and click its name to go to the details page.
- 3. Click the **Tags** tab.
- 4. Click Add Tag.
- 5. In the displayed dialog box, enter a key and a value.

Table 1-11 describes the tag key and value requirements.

Tag key

For each resource, each tag key must be unique, and each tag key can only have one tag value.

Cannot be left blank.

Can contain no more than 128 characters.

Can contain letters in any language, digits, spaces, underscores (_), periods (.), colons (:), equal signs (=), plus signs (+), minus signs (-), and at signs (@).

Cannot start with _sys_ or a space or end with a space.

Tag value

Can be left blank.

Can contain no more than 255 characters.

Can contain letters in any language, digits, spaces,

underscores (_), periods (.), colons (:), slashes (/), equal signs (=), plus signs (+), minus signs (-), and at signs

Table 1-11 Tag naming requirements

Click OK.

Editing a Tag

Modify the value of a tag added to a bandwidth package.

(@).

- 1. Go to the **Bandwidth Packages** page.
- Locate the bandwidth package and click its name to go to the details page.

Cannot start or end with a space.

- 3. Click the **Tags** tab.
- 4. Locate the tag and click **Edit** in the **Operation** column.
- 5. In the displayed dialog box, modify the tag value as needed.
- 6. Click OK.

Deleting a Tag

Delete a tag from a bandwidth package.



Deleted tags cannot be recovered.

- Go to the Bandwidth Packages page.
- 2. Locate the bandwidth package and click its name to go to the details page.
- 3. Click the **Tags** tab.
- 4. Locate the tag and click **Delete** in the **Operation** column.
- 5. In the displayed dialog box, click **OK**.

1.6 Inter-Region bandwidths

1.6.1 Assigning an Inter-Region Bandwidth

Scenarios

If network instances are in the same region, they can communicate with each other by default after they are loaded to one cloud connection. If network instances are in different regions, you need to assign inter-region bandwidths to ensure normal communication between the instances. By default, a cloud connection provides 10 kbit/s of bandwidth for testing cross-region network connectivity.

Constraints

To provide cross-region communication, Cloud Connect will obtain and transmit your credential and account ID from the Chinese mainland to the country or region where the network instances you want to connect to are running for identity verification and authentication.

The credential and account ID is required only for providing services for you. If you need to use Cloud Connect for communication, read and agree to the Cloud Connect Service Disclaimer.

- **Step 1** Go to the **Cloud Connections** page.
- **Step 2** Click the name of the cloud connection to go to the **Basic Information** page.
- Step 3 Click the Inter-Region Bandwidths tab.
- **Step 4** Click **Assign Inter-Region Bandwidth** and configure the parameters based on **Table 1-12**.

Table 1-12 Parameters required for assigning inter-region bandwidth

Parameter	Description
Regions	Specifies the regions of the network instances that need to communicate with each other. Select two regions.
	Select two regions.
Bandwidth Package	Specifies the purchased bandwidth package that will be bound to the cloud connection.
Bandwidth	Specifies the bandwidth you require for communication between regions, in Mbit/s.
	The sum of all inter-region bandwidths you assign cannot exceed the total bandwidth of the bandwidth package. Plan the bandwidth in advance.

Step 5 Click OK.

Now the network instances in the two regions can communicate with each other.

□ NOTE

The default security group rules deny all the inbound traffic. Ensure that security group rules in both directions are correctly configured for resources in the regions to ensure normal communication.

----End

1.6.2 Viewing Inter-Region Bandwidths

Scenarios

You can view inter-region bandwidths you have configured for a cloud connection.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the Inter-Region Bandwidths tab.
- 4. View the inter-region bandwidths configured for the cloud connection.

1.6.3 Modifying an Inter-Region Bandwidth

Scenarios

You can modify an inter-region bandwidth if it no longer meets your requirements.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the Inter-Region Bandwidths tab.
- 4. Locate the inter-region bandwidth you want to modify and click **Modify** in the **Operation** column.
- 5. Modify the bandwidth and click **OK**.

1.6.4 Deleting an Inter-Region Bandwidth

Scenarios

If you do not require communication between two regions, you can delete the inter-region bandwidth assigned between them.

Procedure

1. Go to the **Cloud Connections** page.

- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the Inter-Region Bandwidths tab.
- 4. Locate the inter-region bandwidth you want to delete and click **Delete** in the **Operation** column.
- 5. In the displayed dialog box, click **OK**.

1.6.5 Viewing Monitoring Data of an Inter-Region Bandwidth

Scenarios

You can view the real-time monitoring data of an inter-region bandwidth to evaluate the network quality.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the Inter-Region Bandwidths tab.
- 4. Locate the inter-region bandwidth and click the icon in the **Monitoring** column to view the metrics of the corresponding period, for example, metrics of the last hour, 3 hours, or 12 hours.

1.7 Cross-Account Authorization

1.7.1 Allowing Other Users to Load Your VPCs

Scenarios

You can grant other users the permissions to load your VPCs to their cloud connections.

- **Step 1** Go to the **Cross-Account Authorization** page.
- **Step 2** On the **Network Instances Authorized by Me** tab, click **Authorize Network Instance**.
- **Step 3** Configure the parameters based on **Table 1-13**.

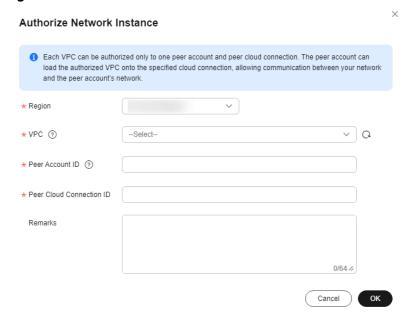


Figure 1-31 Cross-account authorization

Table 1-13 Parameters for the other account to grant you the permission to load their VPC to your cloud connection

Parameter	Description
Region	Specifies the region where the VPC is located.
VPC	Specifies the VPC to be loaded to your cloud connection.
Peer Account ID	Specifies the ID of your account.
Peer Cloud Connection ID	Specifies the ID of your cloud connection that the VPC is to be loaded to.
Remarks	Provides supplementary information about cross-account authorization.

Step 4 Click OK.

----End

1.7.2 Viewing Authorization

You can view the VPCs that you have allowed other users to load to their cloud connections and the VPCs that you are allowed to load to your cloud connection.

Viewing the VPCs that Can Be Loaded to Other Users' Cloud Connections

Scenarios

You can view the VPCs that you have allowed other users to load to their cloud connections

- 1. Go to the Cross-Account Authorization page.
- 2. In the search area above the list, you can search for network instances by attribute or enter a keyword to search for the target network instance.

Viewing the VPCs that Other Users Allow You to Load

Scenarios

You can view the VPCs that other users have allowed you to load to your cloud connection.

Procedure

- 1. Go to the Cross-Account Authorization page.
- 2. Click the **Network Instances Authorized to Me** tab.
- 3. In the search area above the list, you can search for network instances by attribute or enter a keyword to search for the target network instance.

1.7.3 Canceling Authorization

Scenarios

You can cancel the authorization that allows other users to load your VPCs to their cloud connections.

Procedure

- 1. Go to the **Cross-Account Authorization** page.
- 2. On the **Network Instances Authorized by Me** tab, locate the network instance and click **Cancel Authorization** in the **Operation** column.
- 3. In the displayed dialog box, click **OK**.

□ NOTE

After the authorization is canceled, other users can still use your VPCs that have been loaded to their cloud connections until these VPCs are removed from the cloud connection.

1.7.4 Loading a VPC in Another Account

Scenarios

You can load the VPCs in other accounts to your cloud connection so that your VPCs can communicate with these VPCs.

Prerequisites

You must have the permissions of **Tenant Guest**, **VPC Administrator**, and **Cross Connect Administrator** for the region where the VPCs in other accounts reside.

For details, see **Permission Management**.

Procedure

- 1. Go to the **Cross-Account Authorization** page.
- 2. Click the **Network Instances Authorized to Me** tab.
- 3. Locate the network instance and click **Load to Cloud Connection** in the **Operation** column.
- 4. Configure the parameters based on Table 1-14.

Table 1-14 Parameters for loading a VPC to a cloud connection

Parameter	Description
Cloud Connection ID	Specifies the ID of the cloud connection to which the VPC you want to load.
Region	Specifies the region where the VPC you want to connect is located.
Instance Type	Specifies the type of the network instance you can load. Only VPCs can be loaded.
Peer VPC	Specifies the ID of the VPC to be loaded.
VPC CIDR Block	Specifies the subnets in the VPC you want to load and custom CIDR blocks.

5. Click OK.

You can view the loaded VPC on the **Network Instances** tab. For details, see **Viewing a Network Instance**.

1.8 Routes

1.8.1 Modifying the VPC CIDR Block

Scenarios

If you use a cloud connection together with another cloud service, such as NAT Gateway, Direct Connect, or VPN, you need to add the CIDR block of the cloud service to the cloud connection, so that the VPCs you load to the cloud connection can communicate with that cloud service.

Precautions

Modifying the VPC CIDR block may affect the communication between the cloud connection and external networks. Exercise caution when performing this operation.

When you load a VPC to a cloud connection, you can select the subnets in the VPC and specify custom CIDR blocks.

Only the subnets you select and the custom CIDR blocks you specify can be used for communication.

The following uses an example to explain this.

Suppose that there are two VPCs (VPC-A and VPC-B), each in a separate region. A cloud connection has been created to enable communication between the two VPCs. VPC-A has two subnets: subnet 1 and subnet 2. If only subnet 1 is selected when VPC-A is loaded to the cloud connection, only subnet 1 can communicate with VPC-B, and subnet 2 cannot communicate with VPC-B. To enable communication between subnet 2 in VPC-A and VPC-B, you need to select subnet 2 and deselect subnet 1 for VPC-A. In this way, subnet 2 can communicate with VPC-B, and subnet 1 cannot communicate with VPC-B.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Network Instances** tab.
- 4. Locate the VPC for which you want to add custom CIDR blocks.
- 5. In the lower right area of the page, click **Modify VPC CIDR Block**.
- 6. Modify the subnets and custom CIDR blocks.
- 7. Click **OK**.

1.8.2 Viewing Cloud Connection Routes

Scenarios

You can view the routes of a cloud connection.

Procedure

- 1. Go to the **Cloud Connections** page.
- 2. Click the name of the cloud connection to go to the **Basic Information** page.
- 3. Click the **Route Information** tab. All routes of the cloud connection are displayed.
- 4. In the search area above the list, you can search for routes by attribute or enter a keyword to search for the target route.

1.9 Monitoring and Auditing

1.9.1 Using Cloud Eye to Monitor Cloud Connections

1.9.1.1 Overview

Monitoring is key to ensuring the performance, reliability, and availability of a cloud service. Monitoring provides you with data on cloud connections. You can use Cloud Eye to track the status of cloud connections. Cloud Eye automatically monitors resources in real time and enables you to manage alarms and notifications, so that you can keep track of performance of cloud connections.

For more information, see the following:

- Monitoring Metrics
- Setting an Alarm Rule
- Viewing Metrics

1.9.1.2 Cloud Connection Metrics

Description

The table describes monitored metrics reported by cloud connections to Cloud Eye as well as their namespaces and dimensions. You can use the management console to query the metrics of the monitored objects and alarms generated for cloud connections.

Namespace

SYS.CC

Metrics

Table 1-15 Cloud connection metrics

ID	Metric	Description	Value Range	Monitore d Object	Monitorin g Interval
network_in coming_bit s_rate	Network Incoming Bandwidth	Bit rate for inbound data to a region from another region of a cloud connection Unit: bit/s	≥ 0 bits/s	Inter- region bandwidth	5 minutes
network_o utgoing_bit s_rate	Network Outgoing Bandwidth	Bit rate for outbound data from a region to another region of a cloud connection Unit: bit/s	≥ 0 bits/s	Inter- region bandwidth	5 minutes

ID	Metric	Description	Value Range	Monitore d Object	Monitorin g Interval
network_in coming_by tes	Network Incoming Traffic	Number of bytes for inbound data to a region from another region of a cloud connection Unit: byte	≥ 0 bytes	Inter- region bandwidth	5 minutes
network_o utgoing_by tes	Network Outgoing Traffic	Number of bytes for outbound data from a region to another region of a cloud connection Unit: byte	≥ 0 bytes	Inter- region bandwidth	5 minutes
network_in coming_pa ckets_rate	Network Incoming Packet Rate	Packet rate for inbound data to a region from another region of a cloud connection Unit: Packet/s	≥ 0 packets/s	Inter- region bandwidth	5 minutes
network_o utgoing_pa ckets_rate	Network Outgoing Packet Rate	Packet rate for outbound data from a region to another region of a cloud connection Unit: Packet/s	≥ 0 packets/s	Inter- region bandwidth	5 minutes
network_in coming_pa ckets	Network Incoming Packets	Number of packets for inbound data to a region from another region of a cloud connection Unit: Packet	≥ 0 packets	Inter- region bandwidth	5 minutes

ID	Metric	Description	Value Range	Monitore d Object	Monitorin g Interval
network_o utgoing_pa ckets	Network Outgoing Packets	Number of packets for outbound data from a region to another region of a cloud connection Unit: Packet	≥ 0 packets	Inter- region bandwidth	5 minutes
network_b andwidth_ usage	Network Bandwidth Usage	Utilization of an inter-region bandwidth assigned to a cloud connection Unit: percent	0-100%	Inter- region bandwidth	5 minutes

Dimensions

Key	Value
cloud_connect_id	Cloud connection ID
bwp_id	Bandwidth package ID
region_bandwidth_id	Inter-region bandwidth ID

If a monitored object has multiple dimensions, all dimensions are mandatory when you use APIs to query the metrics.

• Query a single metric:

 $\label{lim:optimizero} $\dim_0=\operatorname{cloud_connect_id} & 2\operatorname{Ca}_0=2\operatorname{ab}_2=2\operatorname{dim}_0=2\operatorname{cloud_connect_id} & 2\operatorname{Ca}_0=2\operatorname{ab}_2=2\operatorname{dim}_0=2\operatorname{cloud_connect_id} & 2\operatorname{Ca}_0=2\operatorname{ad}_0=2\operatorname{dim}_0=2\operatorname{cloud_connect_id} & 2\operatorname{Ca}_0=2\operatorname{cloud_connect_id} & 2\operatorname{Ca}_0=2\operatorname{Ca}_0=2\operatorname{cloud_connect_id} & 2\operatorname{Ca}_0=2\operatorname$

• Query multiple metrics:

```
"dimensions": [
{
    "name": "cloud_connect_id",
    "value": "a92ab2f75d844dbebbc3fcc7871d1136"
},
{
    "name": "bwp_id",
    "value": "625db750db7b1447d0c9d1a447c11903"
},
{
    "name": "region_bandwidth_id",
    "value": "e2cc9dc0b4954fbbaf1299f2727fe1ca"
},
],
```

1.9.1.3 Viewing Cloud Connection Metrics

Scenarios

You can view cloud connection metrics on the Cloud Eye console.

Procedure

- **Step 1** Go to the **Dashboard** page.
- **Step 2** In the navigation pane on the left, choose **Cloud Service Monitoring**. Then click **Cloud Connect CC**.

The page that shows the Cloud Connect monitoring details is displayed.

Step 3 On the **Resources** tab, locate the cloud connection and click **View Metric** in the **Operation** column to view the metrics.

■ NOTE

For details about querying metrics, see Querying Cloud Service Monitoring Metrics.

----End

1.9.1.4 Creating an Alarm Rule

Scenarios

This section describes how to create alarm rules and notifications for cloud connections.

By creating alarm rules, you define how the alarm system checks monitoring data and sends alarm notifications when monitoring data meets alarm policies.

After creating alarm rules for important metrics, you can know exceptions timely and rectify the faults quickly.

Procedure

- 1. Go to the **Alarm Rules** page.
- 2. Click Create Alarm Rule or modify an existing alarm rule.
- 3. Configuring the parameters and then click **Create**.

After the alarm rule is set, the system automatically notifies you when an alarm is triggered.

■ NOTE

For more information about cloud connection alarm rules, see **Cloud Eye User Guide**.

1.9.2 Using CTS to Record Cloud Connection Operations

1.9.2.1 Key Cloud Connection Operations

Scenarios

With Cloud Trace Service (CTS), you can record operations associated with cloud connections for later query, audit, and backtracking.

Prerequisites

You have enabled CTS.

Key Operations Recorded by CTS

Table 1-16 Cloud connection operations recorded by CTS

Operation	Resource	Trace
Creating a cloud connection	cloudConnection	createCloudConnection
Updating a cloud connection	cloudConnection	updateCloudConnection
Deleting a cloud connection	cloudConnection	deleteCloudConnection
Loading a network instance	networkInstance	createNetworkInstance
Updating a network instance	networkInstance	updateNetworkInstance
Removing a network instance	networkInstance	deleteNetworkInstance
Assigning an inter-region bandwidth	interRegionBandwidth	createInterRegionBand- width
Updating an inter-region bandwidth	interRegionBandwidth	updateInterRegionBand- width
Deleting an inter-region bandwidth	interRegionBandwidth	deleteInterRegionBand- width
Buying a bandwidth package	bandwidthPackage	createBandwidthPackage
Updating a bandwidth package	bandwidthPackage	updateBandwidthPack- age
Deleting a bandwidth package	bandwidthPackage	deleteBandwidthPackage
Binding a bandwidth package to a cloud connection	bandwidthPackage	associateBandwidthPack- age

Operation	Resource	Trace
Unbinding a bandwidth package	bandwidthPackage	disassociateBandwidth- Package
Allowing other users to load your VPCs	authorisation	createAuthorisation
Updating authorization	authorisation	updateAuthorisation
Canceling authorization	authorisation	deleteAuthorisation

1.9.2.2 Viewing Cloud Connection Audit Logs

Scenarios

After CTS is enabled, CTS starts recording operations on cloud resources. The CTS management console stores the last seven days of operation records.

This section describes how to query or export the last seven days of operation records on the management console.

- 1. Log in to the management console.
- 2. Click in the upper left corner and select the desired region and project.
- 3. In the upper left corner of the page, click = to go to the service list. Under Management & Governance, click Cloud Trace Service.
- 4. In the navigation pane on the left, choose **Trace List**.
- 5. Specify filters as needed. The following filters are available:
 - Trace Type: Set it to Management or Data.
 - Trace Source, Resource Type, and Search By
 Select filters from the drop-down list.
 - If you select **Trace name** for **Search By**, select a trace name.
 - If you select **Resource ID** for **Search By**, select or enter a resource ID.
 - If you select **Resource name** for **Search By**, select or enter a resource name.
 - Operator: Select a specific operator (a user other than an account).
 - Trace Status: Select All trace statuses, Normal, Warning, or Incident.
 - Search time range: In the upper right corner, choose Last 1 hour, Last 1 day, or Last 1 week, or specify a custom time range.
- 6. Click arrow on the left of the required trace to expand its details.
- 7. Locate the required trace and click **View Trace** in the **Operation** column. A dialog box is displayed, showing the trace content.

1.10 Quotas

What Is Quota?

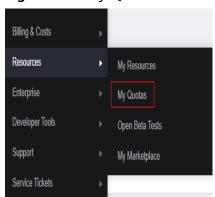
Quotas can limit the number or amount of resources available to users, such as the maximum number of ECS or EVS disks that can be created.

If the existing resource quota cannot meet your service requirements, you can apply for a higher quota.

How Do I View My Quotas?

- 1. Log in to the management console.
- 2. Click $^{ extstyle ex$
- In the upper right corner of the page, choose Resources > My Quotas.
 The Service Quota page is displayed.

Figure 1-32 My Quotas



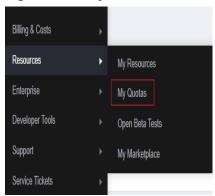
4. View the used and total quota of each type of resources on the displayed page.

If a quota cannot meet service requirements, apply for a higher quota.

How Do I Apply for a Higher Quota?

- 1. Log in to the management console.
- In the upper right corner of the page, choose Resources > My Quotas.
 The Service Quota page is displayed.

Figure 1-33 My Quotas



3. Click **Increase Quota** in the upper right corner of the page.

Figure 1-34 Increasing quota



- 4. On the **Create Service Ticket** page, configure parameters as required. In the **Problem Description** area, fill in the content and reason for adjustment.
- 5. After all necessary parameters are configured, select I have read and agree to the Ticket Service Protocol and Privacy Statement and click Submit.

2 Central Network Operation Guide

2.1 Permissions Management

2.1.1 Creating a User and Granting Central Network Permissions

Use IAM to implement fine-grained permissions control for your Cloud Connect resources. With IAM, you can:

- Create IAM users for personnel based on your enterprise's organizational structure. Each IAM user has their own identity credentials for accessing Cloud Connect resources.
- Grant users only the permissions required to perform a given task based on their job responsibilities.
- Entrust an account or cloud service to perform efficient O&M on your Cloud Connect resources.

Skip this part if you do not require individual IAM users for refined permissions management.

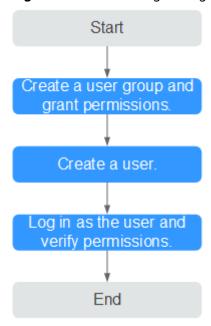
Figure 2-1 shows the process of granting permissions.

Prerequisites

Before you assign permissions to a user group, you need to know the permissions that you can assign to the user group and select permissions based on service requirements. For details about the system permissions, see **Permissions**. For the system policies of other services, see **System Permissions**.

Process Flow

Figure 2-1 Process of granting permissions



- 1. Create a user group and assign permissions (the Cross Connect Administrator policy used as an example).
- 2. Create an IAM user and add it to a group.

On the IAM console, create a user and add it to the user group created in 1.

3. Log in and verify permissions.

After logging in to the Cloud Connect console using the user's credentials, verify that the user has all permissions for Cloud Connect resources.

- In the service list, choose Networking > Cloud Connect. In the navigation pane on the left, choose Cloud Connect > Central Networks.
 Click Create Central Network in the upper right corner. If the creation is successful, the Cross Connect Administrator policy has taken effect.
- Choose any other service in the service list. A message will appear indicating that you have sufficient permissions to access the service.

2.1.2 Central Network Custom Policies

Custom policies can be created to supplement the system-defined policies.

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions.
 This does not require knowledge of policy syntax.
- JSON: Create a JSON policy or edit an existing one.

For details, see **Creating a Custom Policy**. The following section contains examples of common custom policies.

Example Custom Policies

Example 1: Allowing users to delete central networks

• Example 2: Denying the deletion of central network policies

A policy with only "Deny" permissions must be used together with other policies. If the permissions granted to an IAM user contain both "Allow" and "Deny", the "Deny" permissions take precedence over the "Allow" permissions.

The following method can be used if you need to assign permissions of the **CC FullAccess** policy to a user but also forbid the user from deleting central network policies. Create a custom policy and assign both policies to the group that the user belongs to. Then the user can perform all operations on Cloud Connect resources except deleting central network policies. The following is an example of a deny policy:

Example 3: Create a custom policy containing multiple actions.

A custom policy can contain the actions of multiple services that are of the global or project-level type. The following is an example policy containing actions of multiple services:

```
"Version": "1.1",
"Statement": [
      "Effect": "Allow",
      "Action": [
         "cc:centralNetwork:create",
         "cc:centralNetwork:update",
         "cc:centralNetwork:delete",
         "cc:centralNetwork:get"
     ]
   },
      "Effect": "Allow".
      "Action": [
         "er:instances:create",
         "er:instances:update",
         "er:instances:delete",
         "er:instances:get"
     ]
  }
]
```

2.2 Central Networks

2.2.1 Overview

Central Network

Relying on the cloud backbone network, a central network allows you to easily set up a reliable, intelligent enterprise-grade network and manage global network resources on premises and on the cloud. By setting up a central network, you can enable communication between enterprise routers, as well as between enterprise routers and your on-premises data center, in the same region or different regions.

∩ NOTE

For details about the regions where central networks are available, see Region Availability.

Application Scenarios

• Cross-region communication on the cloud: Enterprise routers in different regions are added to a central network as attachments so that resources in these regions can communicate with each other over one network.

Figure 2-2 Cross-region communication between enterprise routers



Communication between on-premises data centers and the cloud: Enterprise
routers and global DC gateways are added to a central network as
attachments. In this way, multiple VPCs on the cloud can communicate with
on-premises data centers across regions.

Figure 2-3 Connectivity between enterprise routers and an on-premises data center



• Global network: By flexibly changing the central network policies, you can build a global network more conveniently.

Central Network Quotas

Table 2-1 Central network quotas

Quota Type	Quota	How to Increase Quota
Central networks in an account	6	Submit a service ticket.
Policies for a central network	500	Submit a service ticket.
Policy document size (KB)	10	The quota cannot be increased.
Enterprise routers on a central network as attachments in a region	1	The quota cannot be increased. Only one enterprise router can be added to a central network as an attachment in a region.
Global DC gateways on a central network as attachments in a region	3	Submit a service ticket.

Central Network Constraints

- To use a central network, the following resources must have been created:
 - Enterprise router: used to set up a central network
 - Global DC gateway: attached to an enterprise router for allowing onpremises data centers to access the cloud across regions
- Policy management
 - A central network can only have one policy. If you apply another policy for this central network, the policy that was previously applied will be automatically cancelled.
 - In each policy, only one enterprise router can be added for a region. All added enterprise routers can communicate with each other by default.
 - A policy that is being applied or cancelled cannot be deleted.
- Cross-site connection bandwidth management

- A cross-site connection bandwidth cannot be changed or deleted when it is being created, updated, deleted, frozen, unfrozen, or is recovering.
- The total of cross-site connection bandwidths cannot exceed the global connection bandwidth.
- If a cross-site connection bandwidth is deleted, you will still be billed for the global connection bandwidth.

Configuration Process

Figure 2-4 shows the process of configuring a central network to manage global network resources.

Figure 2-4 Central network configuration process



Table 2-2 Steps for configuring a central network

N o.	Step	Description	Reference
1	Create a central network.	After an enterprise router is created, you can create a central network and add the enterprise router to a policy of the central network. In this way, resources can communicate with each other across regions, and network resources in each region can be managed centrally.	Creating a Central Network
2	(Optional) Add attachments.	Attach global DC gateways to the enterprise routers in a specific region of the central network to enable resources to communicate with each other across regions.	Adding Attachments
3	Assign cross- site connection bandwidth.	After adding enterprise routers or global DC gateways in different regions to the same policy, purchase a global connection bandwidth and assign bandwidth for cross-site connections.	Assigning Cross- Site Connection Bandwidth

2.2.2 Central Networks

Scenarios

After an enterprise router is created, you can create a central network and add the enterprise router to a policy of the central network. In this way, resources can

communicate with each other across regions, and network resources in each region can be managed centrally.

If both global DC gateways and enterprise routers are added to a central network, the on-premises data centers can access the cloud.

Constraints

 Before building a central network, you need to create enterprise routers and enable Default Route Table Association and Default Route Table Propagation for them.

Figure 2-5 Enabling **Default Route Table Association** and **Default Route Table Propagation** for enterprise routers



• To enable communication between on-premises data centers and the cloud, you need to create global DC gateways and add them to the central network as attachments.

You can check the regions where global DC gateways are available on the Direct Connect console.

Creating a Central Network

- 1. Go to the **Central Networks** page.
- 2. In the upper right corner of the page, click **Create Central Network**.
- Enter the name and description and then configure policies for the central network. Table 2-3 describes the parameters required for creating a central network.

Table 2-3 Parameters for creating a central network

Parameter	Setting
Name	Enter a name for the central network.
Description	Describe the central network for easy identification.

Parameter	Setting
Policy	 Region Add a policy to record your configuration. You need to select a region for the policy.
	Enterprise Router Add only one enterprise router for a region. All added enterprise routers can communicate with each other by default.
	10 kbit/s of bandwidth is provided for testing connectivity between enterprise routers.
Configuratio n Fee	The connections to enterprise routers are not free. The price of connections on a central network is determined by the number of pay-per-use enterprise routers.

4. Click OK.

Follow-up Operations

- Add attachments.
 - For details, see **Attachments**.
- Assign cross-site connection bandwidths.
 For details, see Cross-Site Connection Bandwidths.

2.2.3 Policies

Scenarios

Policies record the enterprises routers that have been added to a central network to allow you to better manage your network. You can apply policies of any version.

Constraints

- A central network can only have one policy. If you apply another policy for this central network, the policy that was previously applied will be automatically cancelled.
- In each policy, only one enterprise router can be added for a region. All added enterprise routers can communicate with each other by default.
- A policy that is being applied or cancelled cannot be deleted.

Creating a Policy

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. On the **Policies** tab, click **Add Policy**.
- Select the target region and enterprise router in that region.
 You can click Add Enterprise Router to add an enterprise router in another region.

5. Click **OK**.

Applying a Policy

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. On the **Policies** tab, locate the policy you want to apply and click **Apply** on the right.
- 4. In the **Policy Changes** area on the right, check the change of the enterprise router in the policy.
- 5. Click **OK**.

Deleting a Policy

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. On the **Policies** tab, locate the policy you want to delete and click **Delete** on the right.
- 4. In the displayed dialog box, click **OK**.

2.2.4 Attachments

Scenarios

You can add network instances such as global DC gateways to a central network as attachments to enterprise routers in given regions, so that network instances in different regions can communicate with each other.

This topic describes how to manage attachments on a central network.

Constraints

 Only existing global DC gateways can be added to a central network as attachments. If there are no global DC gateways, create one by following the instructions in Creating a Global DC Gateway.

Ⅲ NOTE

You can check the regions where global DC gateways are available on the Direct Connect console.

- By default, you can add up to three attachments to a central network. To increase the quota, **submit a service ticket**.
- Up to five attachments can be added on the console at a time on the console.

Adding Attachments

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. On the Attachments tab, click Add Attachment.
- 4. Add network instances such as global DC gateways to the central network. Table 2-4 describes the parameters.

Table 2-4 Parameters for adding a network instance to a central network as an attachment

Parameter	Setting			
Name	Enter a name for the attachment.			
Region where the enterprise router on the central network is located				
Region	Select the region of the enterprise router that the network instance is attached to.			
Enterprise Router	Select an enterprise router in the selected region. The network instance will be attached to the selected enterprise router.			
	If there are no enterprise routers for you to choose from, click Create Enterprise Router to create one first.			
Network instance that will be added to a central network				
Attachment Type	Specify the type of the network instance that will be added to the central as attachment.			
	Currently, only global DC gateways are supported.			
	A global DC gateway can work with enterprise routers in the same region or different regions to build a central network so that your on-premises data center can access the VPCs over the Huawei backbone network. This can reduce network latency, simplify network topology, and improve O&M efficiency.			
Region	Select the region where the global DC gateway is located. This region may be different from that of the enterprise router.			
Global DC Gateway	Select the global DC gateway that will be attached to the selected enterprise router, so that they can communicate with each other and the on-premises data center can communicate with the cloud network.			
	If there are no global DC gateways for you to choose from, click Create Global DC Gateway to create one first.			

If you want to add more attachments, click **Add Attachments** below and configure the parameters.

5. Click **OK**.

You can view the attachment in the attachment list. If **Status** is **Available**, the attachment is added successfully.

Deleting an Attachment

1. Go to the **Central Networks** page.

- 2. Locate the central network and click its name.
- 3. On the **Attachments** tab, locate the attachment you want to delete and click **Delete** in the **Operation** column.
- 4. Click OK.

2.2.5 Cross-Site Connection Bandwidths

Scenarios

Enterprise routers and global DC gateways in different regions added to the same policy can communicate with each other after you purchase a global connection bandwidth and assign cross-site connection bandwidths for these network resources.

Constraints

- Changing Cross-Site Connection Bandwidth and Deleting a Cross-Site Connection Bandwidth cannot be performed when a cross-site connection is being created, updated, deleted, frozen, unfrozen, or is recovering.
- The total of cross-site connection bandwidths cannot exceed the global connection bandwidth.
- After Deleting a Cross-Site Connection Bandwidth, you will still be billed if the global connection bandwidth is not deleted.

Assigning Cross-Site Connection Bandwidth

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. Click the Cross-Site Connection Bandwidths tab.
- 4. Locate the cross-site connection and click **Assign** in the **Global Connection Bandwidth** column.
- 5. On the **Assign Cross-Site Connection Bandwidth** page, select the global connection bandwidth.
 - You can also click **Buy Now** to purchase one if there are no available global connection bandwidths.
- 6. Enter the bandwidth.
- 7. Click **OK**.

Viewing Monitoring Metrics of Cross-Site Connection Bandwidths

You can view the status of each cross-site connection bandwidth assigned for communication between network resources.

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. Switch to the **Cross-Site Connection Bandwidths** tab and click the icon in the **Monitoring** column to view the monitoring data.

□ NOTE

- By setting up a central network, you can enable communication between enterprise
 routers, as well as between enterprise routers and your on-premises data center, in the
 same region or across regions. When a central network is used, attachments on the
 enterprise routers used in the central network policy will be monitored. For details about
 monitoring, see Central Network Metrics.
- If a global DC gateway is attached to an enterprise router, only metrics of the enterprise router can be viewed.

Changing Cross-Site Connection Bandwidth

- Go to the Central Networks page.
- 2. Locate the central network and click its name.
- Click the Cross-Site Connection Bandwidths tab.
- 4. Locate the cross-site connection and click **Change Bandwidth** in the **Operation** column.
- 5. On the **Change Bandwidth** page, change the global connection bandwidth or modify the cross-site connection bandwidth.
- 6. Click OK.

Deleting a Cross-Site Connection Bandwidth

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. Click the Cross-Site Connection Bandwidths tab.
- 4. Locate the cross-site connection and click **Delete Bandwidth** in the **Operation** column.
- 5. In the displayed dialog box, click **OK**.

2.3 Global Connection Bandwidths

2.3.1 Overview

A global connection bandwidth is used by instances to allow communication over the backbone network.

□ NOTE

- In Cloud Connect, global connection bandwidths are mainly used by central networks.
- By default, global connection bandwidths cannot be used by cloud connections. Only some existing users can bind global connection bandwidths to cloud connections.

There are different types of global connection bandwidths that are designed for different application scenarios, including multi-city, geographic-region, and cross-geographic-region bandwidths. Geographic-region and cross-geographic-region bandwidths are often bound to cloud connections for communication on the cloud.

Table 2-5 Global connection bandwidth types

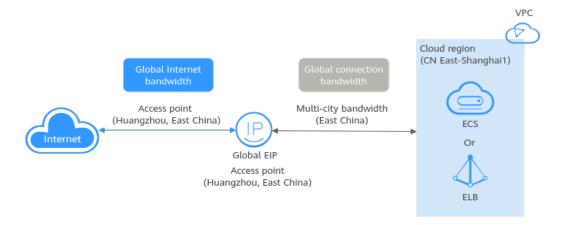
Ban dwi dth Typ e	Instance Type	Description	Scenario
Mul ti- city	Global EIPs	Select this type of bandwidth if you need communication between cloud regions in the same region, for example, CN East-Shanghai1 and CN East-Shanghai2 in East China.	A global EIP and its associated resource, such as an ECS or load balancer, have to be in the same region. Multi-city Bandwidth Application Scenario (Global EIP)
Geo gra phic - regi on	 Globa l EIPs Cloud conne ction 	Select this type of bandwidth if you need communication within a geographic region. Geographic regions include the Chinese mainland, Asia Pacific, and Southern Africa. For example, CN East-Shanghai1 and CN South-Guangzhou are regions in the Chinese mainland. For details about the relationship between geographic regions and Huawei Cloud regions, see Geographic Regions and Huawei Cloud Regions.	 A global EIP and its associated resource, such as an ECS or load balancer, have to be in the same geographic region. Geographic-Region Bandwidth Application Scenario (Global EIP) Enterprise routers on a central network are from the same geographic region. Geographic-Region or Cross-Geographic-Region Bandwidth Application Scenario (Central Network)
Cros s- geo gra phic - regi on	 Globa l EIPs Cloud conne ction 	Select this type of bandwidth if you need communication across geographic regions. Geographic regions include the Chinese mainland, Asia Pacific, and Southern Africa. For example, CN East-Shanghai1 and CN-Hong Kong are from different geographic regions. For details about the relationship between geographic regions and Huawei Cloud regions, see Geographic Regions.	 A global EIP and its associated resource, such as an ECS or load balancer, are from different geographic regions. Cross-Geographic-Region Bandwidth Application Scenario (Global EIP) Enterprise routers on a central network are from different geographic regions. Geographic-Region or Cross-Geographic-Region Bandwidth Application Scenario (Central Network)

Multi-city Bandwidth Application Scenario (Global EIP)

In this example, a global EIP is bound to an ECS.

The ECS is in the CN East-Shanghai1 region, and the access point of the global EIP is in Hangzhou, a city in East China.

Figure 2-6 Multi-city bandwidth application scenario (global EIP)

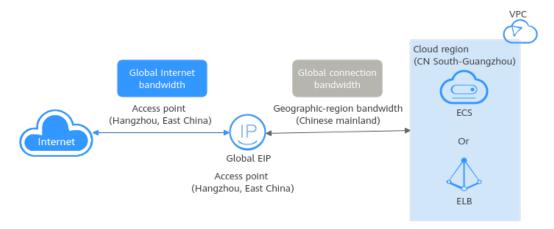


Geographic-Region Bandwidth Application Scenario (Global EIP)

In this example, a global EIP is bound to an ECS.

The ECS is in the CN South-Guangzhou region, and the access point of the global EIP is in Hangzhou. Both Guangzhou and Hangzhou are cities on the Chinese mainland.

Figure 2-7 Geographic-region bandwidth application scenario (global EIP)



Cross-Geographic-Region Bandwidth Application Scenario (Global EIP)

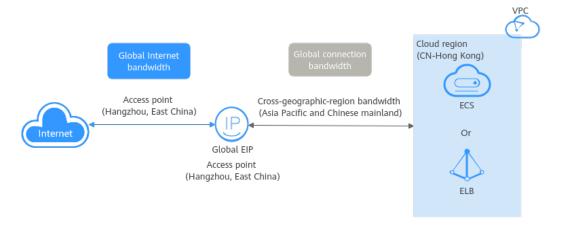
In this example, a global EIP is bound to an ECS.

The ECS is in the CN-Hong Kong region, and the access point of the global EIP is in Hangzhou. CN-Hong Kong is a cloud region in Asia Pacific, but Hangzhou is a city on the Chinese mainland.

- Geographic region 1: Asia Pacific, the geographic region where the ECS is located
- Geographic region 2: Chinese mainland, the geographic region where the global EIP is accessed

Ensure that the geographic regions 1 and 2 are configured as above.

Figure 2-8 Cross-geographic-region bandwidth application scenario (global EIP)



Geographic-Region or Cross-Geographic-Region Bandwidth Application Scenario (Central Network)

In this example, enterprise routers are connected over a cloud connection.

- Enterprise router 1 in CN East-Shanghai1 and enterprise router 2 in CN South-Guangzhou are from the same geographic region. A geographic-region bandwidth can be used for communication between the two enterprise routers.
- Enterprise router 1 in CN East-Shanghai1 and enterprise router 3 in CN-Hong Kong are in different geographic regions. A cross-geographic-region bandwidth can be used for communication between the two enterprise routers.
 - Geographic region 1: Chinese mainland, geographic region where enterprise router 1 is located
 - Geographic region 2: Asia Pacific, geographic region where enterprise router 3 is located

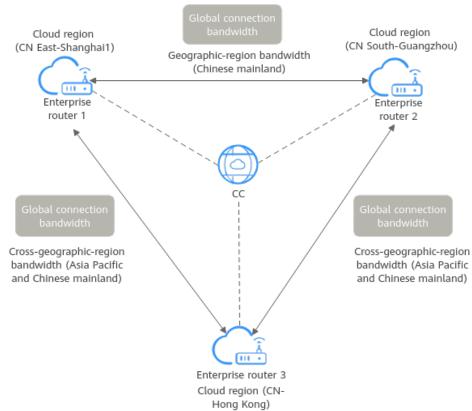
□ NOTE

Ensure that both the geographic regions of enterprise router 1 and enterprise router 3 have been configured.

- Enterprise router 2 in CN South-Guangzhou and enterprise router 3 in CN-Hong Kong are in different geographic regions. A cross-geographic-region bandwidth can be used for communication between the two enterprise routers.
 - Geographic region 1: Chinese mainland, geographic region where enterprise router 2 is located

 Geographic region 2: Asia Pacific, geographic region where enterprise router 3 is located

Figure 2-9 Geographic-region or cross-geographic-region bandwidth application scenario (central network)



2.3.2 Buying a Global Connection Bandwidth

Scenarios

This section describes how to buy a global connection bandwidth for communication over the backbone network.

- 1. Go to the **Buy Global Connection Bandwidth** page.
- 2. Configure the parameters based on Table 2-6.

Table 2-6 Parameters required for buying a global connection bandwidth

Parameter	Description	
Billing Mode	Pay-per-use: a postpaid subscription. You are charged based on the usage duration of the global connection bandwidth. Your global connection bandwidth is billed by second, and you are charged for a minimum of 60 seconds each time. If the usage is less than an hour, you are charged based on the actual duration, accurate to seconds.	
Bandwidth Type	Mandatory There are different types of global connection bandwidths that are designed for different application scenarios, including multi-city, geographic-region, and cross-geographic-region bandwidths. The type of a bandwidth cannot be changed after your purchase. Select a bandwidth type. For details, see Global Connection Bandwidth Overview. You can decide whether to use a geographic-region bandwidth or cross-geographic-region bandwidth based on service scenarios. If you select a geographic-region bandwidth or cross- geographic-region bandwidth, you also need to select geographic region(s) and specify the regions that need to communicate with each other.	
Billed By	 Mandatory The price of a global connection bandwidth varies by its size. After a bandwidth is purchased, the billing starts immediately regardless of whether the bandwidth is used. If a bandwidth is no longer required, delete it in a timely manner to avoid unnecessary fees. 	
Bandwidth	Mandatory Select the bandwidth, in Mbit/s.	
Bandwidth Name	Mandatory Enter the name of the bandwidth. The name: • Must contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	
Enterprise Project	Mandatory Provides a cloud resource management mode, in which cloud resources and members are centrally managed by project.	

Parameter	Description
Bandwidth Type	Mandatory
	There are different types of global connection bandwidths that are designed for different application scenarios, including multi-city, geographic-region, and cross-geographic-region bandwidths. The type of a bandwidth cannot be changed it is created.
	If you plan to bind this bandwidth to a cloud connection, you can select a geographic-region bandwidth or cross-geographic-region bandwidth.
	If you select a geographic-region bandwidth or cross- geographic-region bandwidth, you also need to select geographic region(s) and specify the regions that need to communicate with each other.
Billed By	Mandatory
	The price of a global connection bandwidth varies by its size.
	 After a bandwidth is purchased, the billing starts immediately regardless of whether the bandwidth is used.
	If a bandwidth is no longer required, delete it in a timely manner to avoid unnecessary fees.
Bandwidth	Mandatory
	Select the bandwidth, in Mbit/s.
Bandwidth	Mandatory
Name	Enter the name of the bandwidth. The name:
	Must contain 1 to 64 characters.
	 Can contain letters, digits, underscores (_), hyphens (-), and periods (.).
Enterprise	Mandatory
Project	Provides a cloud resource management mode, in which cloud resources and members are centrally managed by project.

3. Click Next.

- Confirm the configurations and click **Submit**.
 The global connection bandwidth list page is displayed.
- 5. In the global connection bandwidth list, view the status of the bandwidth. If the bandwidth status becomes **Normal**, the purchase is successful.

2.3.3 Adding Instances to a Global Connection Bandwidth

Scenarios

Central networks and global EIPs can use global connection bandwidths for communication.

Constraints

- Instances that can be added to a global connection bandwidth must be from the same region as the bandwidth.
- A global connection bandwidth can only be used by instances of the same type. If you want another type of instances to use a global connection bandwidth that already has instances, you need to remove the instances first.
 - You can add or remove global EIPs in batches.
 - You can bind one global connection bandwidth to or unbind it from a central network at a time.
- To use a global connection bandwidth on a central network, you need to configure cross-site connections by referring to the following:
 - Creating a central network
 - Applying a policy
 - Managing attachments
- Global connection bandwidths of different types can be used with different instances. For details, see the following table.

Table 2-7 Instances that can use a global connection bandwidth

Bandwidth Type	Global EIP	Central Network
Multi-city	√	×
Geographic-region	√	√
Cross-geographic- region	√	√

Using a Global Connection Bandwidth on a Central Network

- 1. Go to the **Central Networks** page.
- 2. Locate the central network and click its name.
- 3. Click the Cross-Site Connection Bandwidths tab.
- 4. Locate the cross-site connection and click **Assign** in the **Global Connection Bandwidth** column.
- 5. On the **Assign Cross-Site Connection Bandwidth** page, select the global connection bandwidth.
- 6. Specify the bandwidth and click **OK**.

Adding Global EIPs to a Global Connection Bandwidth

- Go to the Global Connection Bandwidths page.
- 2. Locate the global connection bandwidth and click **Bind** in the **Operation** column.
- 3. In the displayed dialog box, select **Global EIP** for **Instance Type**. For a multi-city global connection bandwidth, select the two regions where the bandwidth will be used.
- 4. Search for global EIPs using keyword.
- 5. Select one or more global EIPs and click **OK**.

2.3.4 Removing Instances from a Global Connection Bandwidth

Scenarios

You can remove global EIPs from a global connection bandwidth or unbind a global connection bandwidth from a central network.

Constraints

- Before an instance is removed from a global connection bandwidth, the
 instance is not used to run workloads or establish network connectivity, or the
 workloads will be unavailable or the network will be interrupted.
- A global connection bandwidth can only be used by one type of instances. If you want to change the instance type, remove all the instances from the global connection bandwidth and then add instances of another type by referring to Adding Instances to a Global Connection Bandwidth.
- If cross-site connection bandwidths have been assigned from a global connection bandwidth, the global connection bandwidth cannot be unbound from the cloud connection. You need to delete the cross-site connection bandwidths first.

Deleting Cross-Site Connection Bandwidth

- 1. Click in the upper left corner to select a region and a project.
- 2. Go to the **Central Networks** page.
- 3. Locate the central network and click its name.
- 4. Click the **Cross-Site Connection Bandwidths** tab.
- 5. Locate the cross-site connection and click **Delete Bandwidth** in the **Operation** column.
- 6. In the displayed dialog box, click **OK**.

Removing Instances from a Global Connection Bandwidth

- 1. Go to the Global Connection Bandwidths page.
- 2. Locate the global connection bandwidth and click **Unbind** in the **Operation** column.

- If the bandwidth is only bound to one instance, click Remove in the Operation column and then click OK in the displayed dialog box.
- If the bandwidth is bound to more than one instance:
 - i. On the details page of the bandwidth, click **Associated Instances**.
 - ii. Select the instances.
 - iii. Click **Remove** above the instance list.
 - iv. In the displayed dialog box, click **OK**.

2.3.5 Modifying a Global Connection Bandwidth

Scenarios

This section describes how to modify a global connection bandwidth.

You can only modify the bandwidth name and bandwidth. If you modify the bandwidth, the new bandwidth takes effect immediately.

Modifying a Global Connection Bandwidth

- 1. Click in the upper left corner to select a region and a project.
- 2. Go to the Global Connection Bandwidths page.
- 3. Locate the global connection bandwidth you want to modify and choose **More** > **Modify Bandwidth** in the **Operation** column.
- 4. On the **Modify Global Connection Bandwidth** page, modify the bandwidth name and bandwidth and click **Next**.
- 5. Confirm the information and click **Submit**.

2.3.6 Deleting a Global Connection Bandwidth

Scenarios

If a pay-per-use global connection bandwidth is no longer needed, delete the bandwidth in a timely manner to avoid extra expenditures.

Constraints

If a global connection bandwidth is in use by instances, it cannot be deleted. Remove the instances from the global connection bandwidth first. For details, see Removing Instances from a Global Connection Bandwidth.

Procedure

- Go to the Global Connection Bandwidths page.
- 2. Locate the global connection bandwidth you want to delete and choose **More** > **Delete** in the **Operation** column.
- 3. In the displayed dialog box, click **OK**.

2.4 Monitoring and Auditing

2.4.1 Using Cloud Eye to Monitor Central Network Metrics

2.4.1.1 Central Network Metrics

Description

By setting up a central network, you can enable communication between enterprise routers, as well as between enterprise routers and your on-premises data center, in the same region or across regions. When a central network is used, attachments on the enterprise routers used in the central network policy will be monitored.

This section describes metrics reported by enterprise routers in the central network policy to Cloud Eye as well as their namespaces and dimensions. You can view the metrics on the Cloud Eye console.

Namespace

SYS.ER

Metrics

Table 2-8 Monitoring metrics of an attachment

ID	Name	Description	Value Range	Monitored Object	Monitoring Interval (Raw Data)
attachme nt_bytes_i n	Inbou nd Traffic	Network traffic going into the attachment Unit: byte	≥ 0	Attachment	1 minute
attachme nt_bytes_ out	Outbo und Traffic	Network traffic going out of the attachment Unit: byte	≥ 0	Attachment	1 minute
attachme nt_bits_ra te_in	Inbou nd Band width	Network traffic per second going into the attachment Unit: bit/s	≥ 0	Attachment	1 minute

ID	Name	Description	Value Range	Monitored Object	Monitoring Interval (Raw Data)
attachme nt_bits_ra te_out	Outbo und Band width	Network traffic per second going out of the attachment Unit: bit/s	≥ 0	Attachment	1 minute
attachme nt_packet s_in	Inbou nd PPS	Packets per second going into the attachment Unit: packet/s	≥ 0	Attachment	1 minute
attachme nt_packet s_out	Outbo und PPS	Packets per second going out of the attachment Unit: packet/s	≥ 0	Attachment	1 minute
attachme nt_packet s_drop_bl ackhole	Packe ts Dropp ed by Black Hole Route	Packets dropped by black hole route of the attachment Unit: count	≥ 0	Attachment	1 minute
attachme nt_packet s_drop_no route	Packe ts Dropp ed Due to No Match ing Route s	Packets dropped because the attachment has no matching routes Unit: count	≥ 0	Attachment	1 minute

Dimensions

Key	Value
er_attachment_id	Enterprise router attachment

2.4.1.2 Viewing Central Network Metrics

Scenarios

You can view the metrics of attachments on the enterprise routers in a central network policy on the Cloud Eye console.

Procedure

- **Step 1** Go to the **Dashboard** page.
- **Step 2** In the navigation pane on the left, choose **Cloud Service Monitoring** > **Enterprise Router**.

The enterprise router list is displayed.

- **Step 3** View the real-time metrics of enterprise router attachments.
 - 1. In the enterprise router list, locate the enterprise router, click to view its attachments, locate the attachment, and click **View Metric** in the **Operation** column.

The metrics are displayed.

2. View metrics of the attachment.

□ NOTE

For details about querying metrics, see Querying Cloud Service Monitoring Metrics.

----End

2.4.1.3 Creating an Alarm Rule

Scenarios

This section describes how to create alarm rules and notifications for enterprise router attachments.

The alarm function provides the alarm service for monitoring data. By creating alarm rules, you define how the alarm system checks monitoring data and sends alarm notifications when monitoring data meets alarm policies.

After creating alarm rules for important metrics, you can timely know metric data exceptions and quickly rectify the faults.

Procedure

- **Step 1** Go to the **Dashboard** page.
- **Step 2** In the navigation pane on the left, choose **Cloud Service Monitoring** > **Enterprise Router**.

The enterprise router list is displayed.

Step 3 Create an alarm rule and notification for an enterprise router attachment.

1. In the enterprise router list, locate the enterprise router, click to view its attachments, locate the attachment, and click **Create Alarm Rule** in the **Operation** column.

The Create Alarm Rule page is displayed.

2. On the **Create Alarm Rule** page, configure the parameters as prompted.

■ NOTE

For details about the parameters on the **Create Alarm Rule** page, see **Creating an Alarm Rule**.

----End

2.4.2 Using CTS to Record Key Operations on Central Networks

2.4.2.1 Key Central Network Operations

Scenarios

With CTS, you can record operations associated with central networks and global connection bandwidths for later query, audit, and backtracking.

Prerequisites

You have enabled CTS.

Key Operations Recorded by CTS

Table 2-9 Central network operations that can be recorded by CTS

Operation	Resource	Trace
Creating a central network	centralNetwork	createCentralNetwork
Updating a central network	centralNetwork	updateCentralNetwork
Deleting a central network	centralNetwork	deleteCentralNetwork
Adding a central network policy	centralNetworkPolicy	createCentralNetworkPo- licy
Applying a central network policy	centralNetworkPolicy	applyCentralNetworkPo- licy
Deleting a central network policy	centralNetworkPolicy	deleteCentralNetworkPo- licy

Operation	Resource	Trace
Adding a global DC gateway to a central network as an attachment	centralNetworkAttach- ment	createCentralNet- workGdgwAttachment
Updating a global DC gateway on a central network	centralNetworkAttach- ment	updateCentralNet- workGdgwAttachment
Removing an attachment from a central network	centralNetworkAttach- ment	deleteCentralNetworkAt- tachment
Updating a central network connection	centralNetworkConnec- tion	updateCentralNetwork- Connection
Adding a tag to a central network	createCentralNetwork- Tags	centralNetworkTags
Deleting a tag from a central network	deleteCentralNetwork- Tags	centralNetworkTags

Table 2-10 Global connection bandwidth operations recorded by CTS

Operation	Resource	Trace
Creating a global connection bandwidth	globalConnectionBand- width	createGcBandwidth
Updating a global connection bandwidth	globalConnectionBand- width	updateGcBandwidth
Deleting a global connection bandwidth	globalConnectionBand- width	deleteGcBandwidth
Binding a global connection bandwidth to an instance	globalConnectionBand- width	bindGcBandwidth
Unbinding a global connection bandwidth from an instance	globalConnectionBand- width	unbindGcBandwidth

2.4.2.2 Viewing Central Network Audit Logs

Scenarios

After CTS is enabled, CTS starts recording operations on cloud resources. The CTS management console stores the last seven days of operation records.

This section describes how to query or export the last seven days of operation records on the management console.

Procedure

- 1. Log in to the management console.
- 2. Click \bigcirc in the upper left corner and select the desired region and project.
- 3. In the upper left corner of the page, click = to go to the service list. Under Management & Governance, click Cloud Trace Service.
- 4. In the navigation pane on the left, choose **Trace List**.
- 5. Specify filters as needed. The following filters are available:
 - Trace Type: Set it to Management or Data.
 - Trace Source, Resource Type, and Search By
 Select filters from the drop-down list.
 If you select Trace name for Search By, select a trace name.
 If you select Resource ID for Search By, select or enter a resource ID.
 If you select Resource name for Search By, select or enter a resource name.
 - Operator: Select a specific operator (a user other than an account).
 - Trace Status: Select All trace statuses, Normal, Warning, or Incident.
 - Search time range: In the upper right corner, choose Last 1 hour, Last 1 day, or Last 1 week, or specify a custom time range.
- 6. Click arrow on the left of the required trace to expand its details.
- 7. Locate the required trace and click **View Trace** in the **Operation** column. A dialog box is displayed, showing the trace content.

2.5 Quotas

What Is Quota?

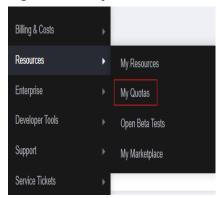
Quotas can limit the number or amount of resources available to users, such as the maximum number of ECS or EVS disks that can be created.

If the existing resource quota cannot meet your service requirements, you can apply for a higher quota.

How Do I View My Quotas?

- 1. Log in to the management console.
- 2. Click \bigcirc in the upper left corner and select the desired region and project.
- In the upper right corner of the page, choose Resources > My Quotas.
 The Service Quota page is displayed.

Figure 2-10 My Quotas



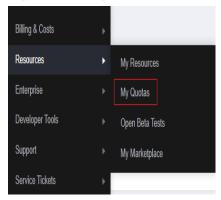
4. View the used and total quota of each type of resources on the displayed page.

If a quota cannot meet service requirements, apply for a higher quota.

How Do I Apply for a Higher Quota?

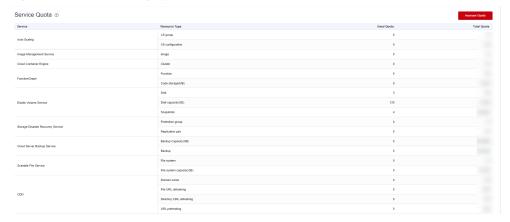
- 1. Log in to the management console.
- In the upper right corner of the page, choose Resources > My Quotas.
 The Service Quota page is displayed.

Figure 2-11 My Quotas



3. Click **Increase Quota** in the upper right corner of the page.

Figure 2-12 Increasing quota



- 4. On the **Create Service Ticket** page, configure parameters as required. In the **Problem Description** area, fill in the content and reason for adjustment.
- 5. After all necessary parameters are configured, select I have read and agree to the Ticket Service Protocol and Privacy Statement and click Submit.