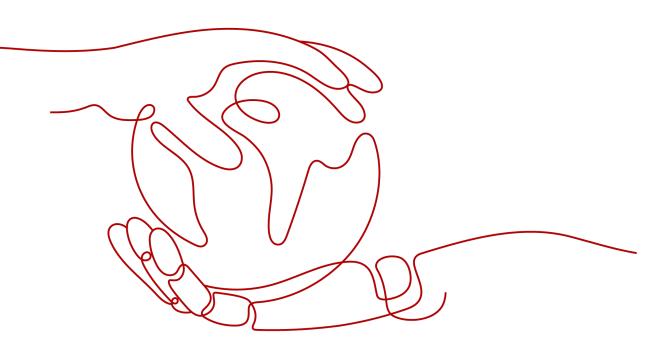
Direct Connect

User Guide

 Issue
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1 Connections

1.1 Creating a Connection

Figure 1-1 shows how Direct Connect connects your on-premises data center to a VPC.

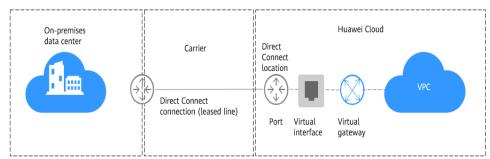


Figure 1-1 Connecting your on-premises data center to a VPC

• Scenario

You need to create a connection to connect your on-premises data center to the Direct Connect location you have selected to build a hybrid cloud.

After you create a connection on the console, Huawei Cloud will provide a dedicated port for exclusive use. To establish connectivity, you need to contact the carrier to connect the leased line to the Direct Connect location you have selected.

Figure 1-2 shows the process of connecting your on-premises data center to Huawei Cloud using Direct Connect.

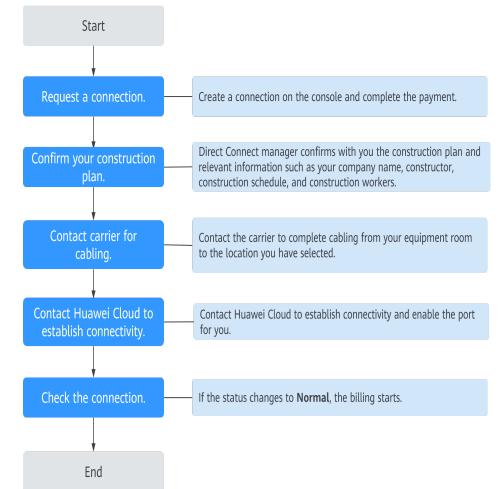


Figure 1-2 Self-service installation process

• Procedure

- a. Go to the **Connections** page.
- b. In the upper left corner of the page, click 🖸 and select a region and project.
- c. In the upper right corner, click **Create Connection**.
- d. On the **Create Connection** page, enter the equipment room details and select the Direct Connect location and port based on **Table 1-1**.

Figure 1-3 Creating a connection

$< \mid$ Create Connection $@$	Self Service Installation Full Service Installation New!
★ Billing Mode	Yearly/Monthly
* Region	C EU-Dublin C EU-Dublin C Regions are geographic areas isolated from each other. Resources are region-specific and cannot be used across regions through internal network connections. For low
	regions are geographic areas isolated non-each other. Resources are region-specific and cannot be used across regions anough memaintervoir connections, For low network latency and quick resource access, select the nearest region.
* Connection Name	
* Location	Dublin
	Choose a different location for each connection if you have more than one connection to ensure high availability.
	If fiber to the building is required, contact your leased line provider for help or get one from the carrier available at your location.
* Carrier	Other v 0
* Port Type	1GE single-mode optical v
* Leased Line Bandwidth (Mbit/s)	1,000 ~
	Select a value that is equal to the bandwidth of the leased line you obtained from the carrier.
Equipment Room Address	
	The address must be specific to the floor on which your equipment room is located.
Tag	It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. View predefined tags Q
	Tag key Tag value
	You can add 20 more tags.
Description	
Port Price: \$138.00 USD ③	Configuration

 Table 1-1 Parameters for creating a connection

Parameter	Example Value	Description	
Billing Mode	Yearly/Monthly	Specifies how you will be billed for the connection. Currently, only Yearly/Monthly is supported.	
Region	EU-Dublin	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.	
Connection Name	dc-123	Specifies the name of the connection.	
Location	Dublin	Specifies the Direct Connect location where your leased line can be connected to.	
Carrier	Other	Specifies the carrier that provides the leased line.	
Port Type	1GE single-mode optical port	Specifies the type of the port: 1GE single-mode optical port, 10GE single-mode optical port, 40GE single-mode optical port, or 100GE single-mode optical port.	
Leased Line Bandwidth (Mbit/s)	100	Specifies the bandwidth of the line you need to lease from the carrier.	

Parameter	Example Value	Description	
Equipment Room Address	Room xx, xx building, xx road, xx district, xx city	Specifies the address of your equipment room. The address must be specific to the floor your equipment room is on.	
Tag	example_key1 example_value1	Adds tags to help you identify your connection. You can change them after the connection is created.	
Description	-	Provides supplementary information about the connection.	
Required Duration	3 months	Specifies how long the connection will be used for.	
Auto-renew	3 months	Specifies whether to automatically renew the subscription to ensure service continuity. For example, if you select this option and the required duration i three months, the system automatically renews the subscription for another three months.	
Enterprise Project	default	Specifies the enterprise project by which connections are centrally managed. Select an existing enterprise project.	

e. Click Confirm Configuration.

- f. Confirm the configuration and click **Pay Now**.
- g. Confirm the order, select a payment method, and click **Confirm**.
- h. After you have paid for the order, a connection ID is allocated to you automatically, and the connection information is displayed on the management console. You will be contacted to confirm the construction plan and relevant information (including your company name, constructor, expected construction time, and construction workers).
- i. After having confirmed the construction plan, you can arrange the carrier to deploy the dedicated line and connect it to your equipment room based on your construction plan.
- j. In normal cases, Huawei onsite engineers will connect the dedicated line to the Huawei Cloud gateway port within two working days.
- k. Verify that the connection is in the **Normal** state, which means that the connection is ready, and the billing starts.

D NOTE

Create a virtual gateway and associate it with the VPC.

Create a virtual interface to associate the connection with the created virtual gateway, so that you can connect your on-premises data center to the VPC through the connection.

1.2 Viewing a Connection

Scenario

After a connection is created, you can view its details.

Procedure

- 1. Go to the **Connections** page.
- 2. Locate the connection you want to view and click its name to view the details.

1.3 Modifying a Connection

Scenario

After creating a connection, you can modify its name, bandwidth, equipment room address, and description.

- 1. In the upper left corner of the page, click **a** and select a region and project.
- 2. Locate the connection you want to modify and click **Modify** in the **Operation** column.
- 3. Modify the connection and click **OK**.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click **a** and select a region and project.
- 3. Locate the connection you want to modify and click **Modify** in the **Operation** column.
- 4. Modify the connection and click **OK**.

1.4 Unsubscribing from a Connection

Scenario

If you do not need to use a self-service connection any longer, you can unsubscribe from it.

D NOTE

You can only unsubscribe from connections that are in the **Normal** state. If a connection is being created, you can unsubscribe from it after the connection is created.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. Locate the connection that you want to unsubscribe from and click **Unsubscribe** in the **Operation** column.
- 4. Locate the target connection and click **Unsubscribe from Resource** in the **Operation** column.
- 5. On the **Unsubscribe** page, select the reason for unsubscription, confirm the refund amount, and select **I understand a handling fee will be charged for this unsubscription**.
- 6. Click Confirm.

1.5 Renewing a Connection

Scenario

You can renew the subscription when a connection is about to expire.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. Locate the connection you want to renew and choose **More** > **Renew** in the **Operation** column.
- 4. Set the duration that you want to renew the connection and click **Pay**. Then pay the order as prompted.

1.6 Managing Connection Tags

Scenario

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

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

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 Tag Overview**.

Adding a Tag

Add a tag to an existing connection.

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 🖸 and select a region and project.
- 3. Locate the connection and click its name to switch to the **Summary** page.
- 4. Click the **Tags** tab.
- 5. Click Add Tag.
- 6. In the displayed dialog box, enter a key and a value.

Table 1-2 describes the tag key and value requirements.

Table 1-2 Tag key and value requirements

Parameter	Requirements		
Кеу	 Cannot be left blank. Must be unique for each resource. Can contain a maximum of 36 characters. Can contain only letters, digits, hyphens, and underscores. 		
Value	 Can be left blank. Can contain a maximum of 43 characters. Can contain only letters, digits, periods, hyphens, and underscores. 		

7. Click **OK**.

Editing a Tag

Modify the value of a tag added to a connection.

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click **a** and select a region and project.
- 3. Locate the connection and click its name to switch to the **Summary** page.
- 4. Click the **Tags** tab.
- 5. In the tag list, locate the tag you want to modify and click **Edit** in the **Operation** column.
- 6. Enter a new value.
- 7. Click **OK**.

Deleting a Tag

Delete a tag from a connection.

Deleted tags cannot be recovered.

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💽 and select a region and project.
- 3. Locate the connection and click its name to switch to the **Summary** page.
- 4. Click the **Tags** tab.
- 5. In the tag list, locate the tag you want to delete and click **Delete** in the **Operation** column.
- 6. Click Yes.

2 Virtual Gateways

2.1 Creating a Virtual Gateway

Scenario

You can create a virtual gateway and associate it with the VPC that you need to access.

Procedure

- 1. Go to the Virtual Gateways page.
- 2. In the upper left corner of the page, click 🖸 and select a region and project.
- 3. In the upper right corner, click **Create Virtual Gateway**.
- 4. Configure the parameters based on Table 2-1.

Greate Virtual	Galeway	
* Name		
* Enterprise Project	-Select- V	Q ⑦ Create Enterprise Project
* VPC	~	Q Create VPC
★ Local Subnet ⑦	Enter one or more subnets using Cl separate each entry by a comma, fo 192.168.52.0/24,192.168.54.0/24.	
BGP ASN	64512	
Tag	It is recommended that you use TMS' different cloud resources. View predef	s predefined tag function to add the same tag to $\overline{\sf ined tags}~Q$
	Tag key	Tag value
	You can add 20 more tags.	
Description		0/128 %
		Cancel

Figure 2-1 Creating a virtual gateway Create Virtual Gateway

Table 2-1 Parameters required for creating a virtual gateway

Parameter	Example Value	Description
Name	vgw-123	Specifies the virtual gateway name. The name can contain 1 to 64 characters.
Enterprise Project	default	Specifies the enterprise project by which virtual gateways are centrally managed. Select an existing enterprise project.
VPC	VPC-001	Specifies the VPC to be associated with the virtual gateway.

Parameter	Example Value	Description
Local Subnet	192.168.0.0/16	Specifies the CIDR blocks of the subnets in the VPC to be accessed using Direct Connect.
		You can add one or more CIDR blocks. If there are multiple CIDR blocks, separate every entry with a comma (,).
BGP ASN	64512	Specifies the BGP ASN of the virtual gateway.
Tag	example_key1 example_value1	Adds tags to help you identify your virtual gateway. You can change them after the virtual gateway is created.
Description	-	Provides supplementary information about the virtual gateway.

5. Click OK.

When the status changes to **Normal**, the virtual gateway has been created.

2.2 Viewing a Virtual Gateway

Scenario

You can view details about a virtual gateway.

Procedure

- 1. Go to the Virtual Gateways page.
- 2. In the upper left corner of the page, click 💽 and select a region and project.
- 3. Locate the virtual gateway and click its name to view the details.

Figure 2-2 Viewing a virtual gateway

al Gateways	D							Create Virtual Gatev
				All pr	ojects 💌	Name	•	Q
Name	Status	Attachment	Associate Netwo	Туре	Virtual Interfac	es Enter	Operation	
^	Normal	VPC		Default		0 default	Modify Delete	
Name				VPC				
ID		0		Local	Subnet			
Status	Normal			Virtual	Interfaces			
Туре	Default			Descri	ption			
Enterprise Project	default							

2.3 Modifying a Virtual Gateway

Scenario

After creating a virtual gateway, you can modify its settings.

Procedure

- 1. Go to the Virtual Gateways page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. Locate the virtual gateway you want to modify and click **Modify** in the **Operation** column.
- 4. Modify the name, local subnet, and description, and then click **OK**.

Figure 2-3 Modifying a virtual gateway

Modify Virtual Gateway

×

* Name	
* Local Subnet ?	
	h
Description	
	0.122
	0/128
	OK Cancel

2.4 Deleting a Virtual Gateway

Scenario

You can delete a virtual gateway if you do not need it any longer and there are no virtual interfaces associated with it.

Procedure

- 1. Go to the Virtual Gateways page.
- 2. In the upper left corner of the page, click **a** and select a region and project.
- 3. Locate the virtual gateway you want to delete and click **Delete** in the **Operation** column.
- 4. In the displayed dialog box, click **OK**.

Figure 2-4 Deleting a virtual gateway



A deleted virtual gateway cannot be recovered. Exercise caution when performing this operation.

Name	ID	
		D
	Yes No	

3 Global DC Gateways

3.1 Global DC Gateway Overview

What Is a Global DC Gateway?

A global DC gateway enables your on-premises data center to access VPCs in multiple regions so you can use a single connection to provide high-speed access to cloud compute and storage resources in any region.

A global DC gateway can only be associated with connections terminated at the same Direct Connect location. If there are multiple connections terminated at different Direct Connect location, you need to create multiple global DC gateways.

Global DC gateways have been launched in some regions. You can view the regions where this feature is available on the console.

Connecting an On-Premises Data Center to VPCs in Different Regions

A global DC gateway can be attached to enterprise routers in different regions. This can reduce the network latency, simplify network topology, and improve network O&M efficiency.

Figure 3-1 Communication with VPCs in different regions using global DC gateways



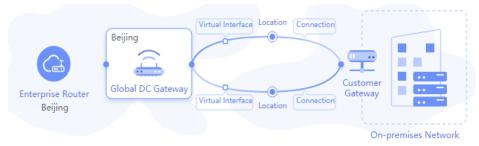
D NOTE

If you need to use a central network for cross-region VPC communication, **submit a service ticket**.

Connecting an On-Premises Data Center to VPCs in the Same Region

A global DC gateway can be attached to enterprise routers in the same region for network communication. This can reduce the network latency, simplify network topology, and improve network O&M efficiency.

Figure 3-2 Communication with VPCs in the same region using global DC gateways



3.2 Creating a Global DC Gateway

Scenario

A global DC gateway can be attached to enterprise routers in the same region for network communication. This can reduce the network latency, simplify network topology, and improve network O&M efficiency.

This section describes how to create a global DC gateway and associate an enterprise router with it.

Procedure

Step	Description
Preparations	Before creating Direct Connect connections, sign up for a HUAWEI ID, enable cloud services, complete real-name authentication, top up your account, confirm the Direct Connect locations, confirm the port availability, contact the carrier to complete the site survey, and confirm the prices.

Step	Description
Step 1: Create a Connection	Create a connection to order a dedicated port and work with the carrier to connect the leased line to the cloud.
	This process involves operations of the customer, carrier, and Huawei Cloud. The operation instructions and the progress of each phase will be displayed on the console.
Step 2: Create a Global DC Gateway	When creating a global DC gateway, you can choose not to associate it with virtual interfaces and connections.
Step 3: Create a Virtual Interface	After a connection and a global DC gateway are created, you need to create a virtual interface to access the desired VPC.
Step 4: Associate an Instance	Associate the global DC gateway with an enterprise router. (A global DC gateway can also be associated with a central network.)

Preparations

Before creating resources such as connections, sign up for a HUAWEI ID, enable cloud services, complete real-name authentication, top up your account, confirm the Direct Connect locations, and complete the site survey.

• Signing Up and Completing Real-Name Authentication

To access the Direct Connect console, you need an account. If you do not have an account, sign up for one.

For details, see and **Completing Real-Name Authentication**.

If you have enabled Huawei Cloud services and completed real-name authentication, skip this step.

• Selecting a Direct Connect Location

When selecting a location, you need to consider the distance to your onpremises data center, which carrier you want to choose, and which type of port will be used.

Distance to your on-premises data center

Select a location nearest to your on-premises data center to reduce network latency. The telecom carriers and bandwidth capabilities vary at different locations.

– Carrier

Select a carrier that can lease a line to you based on your requirements.

Port type

Decide what type of port you want to use, an optical port or electrical port.

- Optical port: The carrier directly provides a fiber optic transmission path for the end user. The port speed is effectively infinite, only limited by the auto-negotiation rate of the optical modules at both ends, for example, 1GE, 10GE, 40GE, and 100GE.
- Electrical port: Generally, RJ45 ports are used. The carrier uses an optical transceiver to convert electrical signals to optical signals required on the transmission network. The industry standard is to use this type of port when the bandwidth is less than 100 Mbit/s.

NOTE

- Currently, 1GE and 10GE single-mode optical ports can transmit data up to 10 km. If you need an optical port to transmit data for more than 10 km, or you need a 40GE or 100GE port, you need to purchase the optical modules by yourself.
- Ensure that the leased line provider can provide the optical fibers to connect to Direct Connect devices.
- No O/E conversion device is allowed on Huawei Cloud. Ensure that the leased line provider uses the correct line type to connect to Direct Connect devices.

To obtain detailed address of a Direct Connect location, contact the Direct Connect manager or **submit a service ticket**.

- Requesting a Site Survey: After you select a location, contact the carrier for a site survey.
 - a. Consult the carrier about how to access the cloud.

You can contact the Direct Connect manager or **submit a service ticket** to obtain the detailed address of the equipment room.

b. Submit an application to Huawei Cloud for conducting a site survey in the equipment room.

The application must include the name, ID card number, and contact information of the personnel who will go to the equipment room for the site survey.

D NOTE

Pay attention to the following when you request a site survey:

If the site survey can be completed at the meet-me room of the carrier, you do not need to submit an application.

- c. After the application is approved, Huawei Cloud will assist the carrier in entering the equipment room for completing the site survey within two working days.
- d. Ask the carrier to carry out the site survey and confirm the expenses, including those for:
 - The port (paid to Huawei Cloud) and one-time setup (free for now)
 - The leased line (paid to the carrier)
 - In-building cabling

Step 1: Create a Connection

For details, see **Step 1: Create a Connection**.

Step 2: Create a Global DC Gateway

- 1. Go to the **Global DC Gateways** page.
- 2. In the upper left corner of the page, click 🖸 and select a region and project.
- 3. In the upper right corner, click **Create Global DC Gateway**.
- 4. Configure the parameters based on Table 3-1.

Parameter	Example Value	Description
Name	dgw-123	 Specifies the name of the global DC gateway. Only letters, digits, underscores (_), hyphens (-), and periods (.) are allowed. The name can contain 1 to 64 characters.
Enterprise Project	default	Specifies the enterprise project by which global DC gateways are centrally managed. Select an existing enterprise project.
BGP ASN	64512	Specifies the autonomous system number used on the cloud for a BGP session. You can use the default ASN, or specify an ASN in the range of 64512–65534 or 1–4294967295.
Tag	example_key1 example_value1	Adds tags to help you identify your global DC gateway. You can change them after the global DC gateway is created.
Description	-	Provides supplementary information about the global DC gateway. It can contain 0 to 128 characters.

Table 3-1 Parameters for creating a global DC gateway

5. Click **OK**.

The page for creating a virtual interface is displayed.

You can continue to **create a virtual interface** or click **Later** in the lower part of the page to suspend subsequent operations.

Step 3: Create a Virtual Interface

- If you select Later for Step 2: Create a Global DC Gateway, locate the global DC gateway and click Create Virtual Interface in the Operation column.
 You can also click Create one in the Virtual Interfaces column.
- 2. Configure the parameters based on Table 3-2.

Table 3-2	Parameters for	r creating a	virtual	interface
14010 0 =	i arameters io	ereating a	medat	meenace

Parameter	Example Value	Description
Region	EU-Dublin	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.
Name	vif-123	Specifies the virtual interface name. The name can contain 1 to 64 characters.
Virtual Interface Priority	Preferred	Specifies whether the virtual interface will be preferentially used over other virtual interfaces. There are two options: Preferred and Standard .
		If multiple virtual interfaces are associated with one Direct Connect device, the load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.
Connection	-	Specifies the connection you can use to connect your on-premises network to Huawei Cloud.
Gateway	Global DC Gateway	Specifies the type of the gateway that the virtual interface connects to. The default option is Global DC Gateway .
Global DC Gateway	dgw-123	Specifies the global DC gateway that will be used.
VLAN	30	Specifies the ID of the VLAN for the virtual interface. You need to configure the VLAN if you create a standard connection. The VLAN for a hosted connection will be allocated by the partner. You do not need to configure the VLAN.

Parameter	Example Value	Description
Bandwidth (Mbit/s)	50	Specifies the bandwidth that can be used by the virtual interface. The bandwidth cannot exceed that of the connection or LAG.
Enterprise Project	default	Specifies the enterprise project by which virtual interfaces are centrally managed. Select an existing enterprise project.
Tag	example_key2 example_value2	Adds tags to help you identify your virtual interface. You can change them after the virtual interface is created.
IP Address Family	IPv4	Specifies the address type of the virtual interface. The default option is IPv4 .
Local Gateway	10.0.0.1/30	Specifies the IP address used by Huawei Cloud to connect to your on- premises network. After you configure Local Gateway on the console, the configuration will be automatically delivered to the gateway used by Huawei Cloud.
Remote Gateway	10.0.0.2/30	Specifies the gateway on your on- premises network. The remote gateway must be in the same IP address range as the local gateway. Generally, a subnet with a 30-bit mask is recommended.
Remote Subnet	192.168.51.0/24, 10.1.123.0/24	Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them.
Routing Mode	BGP	Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network. If there are or will be two or more connections, select BGP routing for higher availability.
BGP ASN	12345	Specifies the ASN of the BGP peer. This parameter is required when BGP routing is selected.

Parameter	Example Value	Description
BGP MD5 Authentication	Qaz12345678	Specifies the password used to authenticate the BGP peer using MD5.
Кеу		This parameter can be set when BGP routing is selected, and the parameter values on both gateways must be the same.
		The key contains 8 to 255 characters and must contain at least two types of the following characters:
		Uppercase letters
		Lowercase letters
		• Digits
		 Special characters ~!,.:;"(){}[]/@#\$ %^&*+\ =
Description	-	Provides supplementary information about the virtual interface.

3. Click OK.

After the virtual interface is created, you can associate an instance with the global DC gateway.

You can **associate an instance** with the global DC gateway now, or click **Later** in the lower part of the page to suspend subsequent operations.

Step 4: Associate an Instance

The following are steps for you to associate an enterprise router with the global DC gateway to set up a peer link.

- 1. If you select **Later** for **Step 3**: **Create a Virtual Interface**, locate the global DC gateway in the global DC gateway list and click **Add one** in the **Peer Link** column.
- 2. Configure the parameters based on Table 3-3.

Parameter	Example Value	Description
Resource Type	EU-Dublin	Specifies the type of the resource that the global DC gateway connects to. There are two options: Central network and Peer link .
		Select Peer link here.
		NOTE If you need to use a central network for cross-region VPC communication, submit a service ticket.

Table 3-3 Parameters for associating an instance

Parameter	Example Value	Description
Name	connection-123	 Specifies the name of the peer link you want to set up. Only letters, digits, underscores (_), hyphens (-), and periods (.) are allowed. The name can contain 1 to 64 characters.
Global DC Gateway	dgw-123	Specifies the global DC gateway used for setting up the peer link. By default, the created global DC gateway is selected.
Peer Link Type	Enterprise router	The default option is Enterprise Router .
Link To	-	Specifies the enterprise router at the other end of the peer link.

3. Click **OK**.

3.3 Associating an Instance with a Global DC Gateway

Scenario

After a global DC gateway is created, you can use it to set up peer links or attach it to a central network.

NOTE

If you need to use a central network for cross-region VPC communication, **submit a service ticket**.

Setting Up a Peer Link

- 1. Go to the **Global DC Gateways** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the global DC gateway list, locate the global DC gateway and click **More** > **Associate Instance** in the **Operation** column.
- 4. On the **Associate Instance** page, select the type of the instance to be associated.

Select Peer link here.

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

After the peer link is created, you can click the name of the global DC gateway to go to the Peer Links tab and view the created peer link.

Attaching to a Central Network

- 1. Go to the **Global DC Gateways** page.
- 2. In the upper left corner of the page, click and select a region and project.
- 3. In the global DC gateway list, locate the global DC gateway and click **More** > **Associate Instance** in the **Operation** column.
- 4. On the **Associate Instance** page, select the type of the instance to be associated.

Select Central network here.

5. Click the redirection link to go to the **Central Networks** page.

Add the global DC gateway as an attachment on a central network. For details, see Adding Attachments.

3.4 Viewing a Global DC Gateway

Scenario

After a global DC gateway is created, you can view its details, such as, its name, ID, status, location, BGP ASN, virtual interfaces, enterprise project, IP address family, peer links, tags, and routes.

Procedure

- 1. Go to the **Global DC Gateways** page.
- 2. In the upper left corner of the page, click 🔽 and select a region and project.
- 3. In the global DC gateway list, view the name, ID, status, location, BGP ASN, enterprise project, virtual interfaces, and peer links.

Click the name of the global DC gateway to view more information.

- On the Basic Information tab, view the name, ID, status, enterprise project, description, location, BGP ASN, the number of peer links, virtual interfaces, IP address family, the time when the gateway was created, and routes.
- On the Peer Links tab, view the name, ID, status, bandwidth, resource type, resource linked to the global DC gateway, region, and location of each peer link.
- On the **Tags** tab, view the tags added to the global DC gateway.

3.5 Modifying a Global DC Gateway

Scenario

You can modify the name, IP address family, and description of an existing global DC gateway.

Procedure

- 1. Go to the Global DC Gateways page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the global DC gateway list, click the name of the global DC gateway you want to modify to go to the **Basic Information** page.

You can also click \checkmark on the right of the global DC gateway name to change its name.

- 4. On the **Basic Information** tab, modify its name, description, IP address family, and routes.
 - Modifying the name or description: Click
 - description, enter a new name or description as prompted, and click \checkmark .
 - Modifying the IP address family: Click Modify on the right of IP Address Family, change the address family of the global DC gateway, and click OK.
 - Modifying the routes: In the lower part of the page, add or delete the routes for the global DC gateway.

3.6 Deleting a Global DC Gateway

Scenario

You can delete a global DC gateway you no longer need.

Constraints

If a global DC gateway is in use, it cannot be deleted. You need to delete the resources associated with the global DC gateway, as described in Table 3-4.

Reason	Solution
The global DC gateway has a virtual interface associated.	Delete the virtual interfaces. For details, see Deleting a Virtual Interface.
The global DC gateway has peer links.	Delete the peer links. For details about how to view the peer links, see Viewing Peer Links.

Procedure

- 1. Go to the **Global DC Gateways** page.
- 2. In the upper left corner of the page, click 🔽 and select a region and project.

- 3. In the global DC gateway list, locate the global DC gateway you want to delete and click **Delete** in the **Operation** column.
- 4. In the displayed dialog box, click **OK**.

3.7 Managing Global DC Gateway Tags

Scenario

After a global DC gateway is created, you can add tags to it, or edit, view or delete its tags.

A tag is an identifier of a global DC gateway and consists of a key and a value. You can add 20 tags to a global DC gateway.

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 Tag Overview**.

Adding a Tag

Add a tag to an existing global DC gateway.

- 1. Go to the Global DC Gateways page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. Click the name of the global DC gateway that you want to add a tag to.
- 4. Click the Tags tab.
- 5. Click Add Tag.
- In the displayed dialog box, enter a key and a value.
 Table 3-5 describes the tag key and value requirements.

 Table 3-5 Tag naming requirements

Parameter	Requirements
Кеу	 Cannot be left blank. Must be unique for each resource. Can contain a maximum of 36 characters. Can contain only letters, digits, hyphens, and underscores.
Value	 Can be left blank. Can contain a maximum of 43 characters. Can contain only letters, digits, periods, hyphens, and underscores.

7. Click OK.

Editing a Tag

Modify the value of a tag added to a global DC gateway.

- 1. Go to the **Global DC Gateways** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. Click the name of the global DC gateway whose tag you want to modify.
- 4. Click the **Tags** tab.
- 5. In the tag list, locate the tag you want to modify and click **Edit** in the **Operation** column.
- 6. Enter a new value.
- 7. Click **OK**.

Deleting a Tag

Delete a tag from a global DC gateway.

▲ CAUTION

Deleted tags cannot be recovered.

- 1. Go to the **Global DC Gateways** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. Click the name of the global DC gateway that you want to delete a tag from.
- 4. Click the **Tags** tab.
- 5. In the tag list, locate the tag you want to delete and click **Delete** in the **Operation** column.
- 6. Click Yes.

4 Virtual Interfaces

4.1 Creating a Virtual Interface

Scenario

After the connection and the gateway are ready, you need to create a virtual interface so that your network can access the VPC.

Procedure

- 1. Go to the Virtual Interfaces page.
- 2. In the upper left corner of the page, click 🖸 and select a region and project.
- In the upper right corner, click Create Virtual Interface.
 Configure the parameters based on Table 4-1.

Figure 4-1 Creating a virtual interface for your own account

$< \mid$ Create Virtual Interface	0
* Virtual Interface Owner	(e) Current account \bigcirc Another account \circledcirc
* Region	♥ EU-Dublin ✓
	Select the region where your VPC resides.
* Name	
* Virtual Interface Priority	Preferred Standard
	If virtual interfaces are associated with one connection, load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.
* Connection	-Select- V Q. Create Connection
	Bandwidth: Mbit/s
Gateway	Virtual gateway Global DC gateway
* Virtual Gateway	Select- Virtual Gateway
* VLAN	0
	Enter a value from 0 to 3,999 based on your network plan. A value of 0 indicates that the connection does not use VLAN. In this case, only one virtual interface can be created. VLAN IDs of the devices used in the on-premises data center and on the cloud must be the same.
* Enterprise Project	-Select- V 🔾 🔿 Create Enterprise Project
* Bandwidth (Mbit/s)	Enable Rate Limiting Learn more
	Multiple virtual interfaces share the bandwidth of the connection. Select a value based on service traffic. The maximum value is the bandwidth of the connection.
Тад	It is recommended that you use TMS's predefined tag function to add the same tag to different cloud resources. View predefined tags Q
	Tag key Tag value

Parameter	Example Value	Description
Virtual Interface Owner	Current account	Specifies the account that this virtual interface will be created for.
Region	EU-Dublin	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.
Name	vif-123	Specifies the virtual interface name.
		The name can contain 1 to 64 characters
Virtual Interface Priority	Preferred	Specifies whether the virtual interface will be preferentially used over other virtual interfaces. There are two options: Preferred and Standard .
		If multiple virtual interfaces are associated with one Direct Connect device, the load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.
Connection	dc-123	Specifies the connection you can use to connect your on-premises network to Huawei Cloud.
Gateway	Virtual gateway	Specifies the type of the gateway that the virtual interface connects to.
		You can select a virtual gateway or global DC gateway.
Virtual Gateway	vgw-123	Specifies the virtual gateway that the virtual interface connects to.
		This parameter is mandatory when Gateway is set to Virtual gateway .
Global DC Gateway	dgw-123	Specifies the global DC gateway that the virtual interface connects to.
		This parameter is mandatory when Gateway is set to Global DC gateway .

Table 4-1 Parameters for creating a virtual interface for your own account

Parameter	Example Value	Description
VLAN	30	Specifies the ID of the VLAN for the virtual interface.
		You need to configure the VLAN if you create a standard connection.
		The VLAN for a hosted connection will be allocated by the partner. You do not need to configure the VLAN.
Bandwidth (Mbit/s)	50	Specifies the bandwidth that can be used by the virtual interface. The bandwidth cannot exceed that of the connection.
Enable Rate Limiting	Not enabled	Limits the highest bandwidth that can be used by the virtual interface.
		If this option is enabled, the rate limit gradients are as follows:
		 If the bandwidth is less than or equal to 100 Mbit/s, the rate limit gradient is 10 Mbit/s.
		 If the bandwidth is greater than 100 Mbit/s but is less than or equal to 1,000 Mbit/s, the rate limit gradient is 100 Mbit/s.
		 If the bandwidth is greater than 1,000 Mbit/s but is less than or equal to 100 Gbit/s, the rate limit gradient is 1 Gbit/s.
		 If the bandwidth is greater than 100 Gbit/s, the rate limit gradient is 10 Gbit/s.
		For example, if the bandwidth is 52 Mbit/s, the actual rate limit is 60 Mbit/s. If the bandwidth is 115 Mbit/s, the actual rate limit is 200 Mbit/s.
Enterprise Project	default	Specifies the enterprise project by which virtual interfaces are centrally managed. Select an existing enterprise project.
Tag	example_key1 example_value 1	Adds tags to help you identify your virtual interface. You can change them after the virtual interface is created.
IP Address Family	IPv4	Specifies the address type of the virtual interface.
		IPv4 is selected by default.

Parameter	Example Value	Description
Local Gateway	10.0.0.1/30	Specifies the IP address used by Huawei Cloud to connect to your on-premises network. After you configure Local Gateway on the console, the configuration will be automatically delivered to the gateway used by Huawei Cloud.
Remote Gateway	10.0.0.2/30	Specifies the IP address used by the on- premises data center to connect to Huawei Cloud. After you configure Remote Gateway on the console, you need to configure the IP address on the interface of the on-premises device. CAUTION The IP addresses of the local gateway and remote gateway must be in the same IP address range. Generally, an IP address range with a 30-bit mask is used. The IP addresses you plan cannot conflict with IP addresses used on your on-premises network. Plan an IP address range that will be used at both ends of the connection for network communication between your on-premises data center and the cloud.
Remote Subnet	192.168.51.0/2 4, 10.1.123.0/24	Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them.
Routing Mode	BGP	Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network. If there are or will be two or more connections, select BGP routing for higher availability.
BGP ASN	12345	Specifies the autonomous system number (ASN) of the BGP peer. This parameter is required when BGP routing is selected.

Parameter	Example Value	Description
BGP MD5 Authentication	Qaz12345678	Specifies the password used to authenticate the BGP peer using MD5.
Кеу		This parameter can be set when BGP routing is selected, and the parameter values on both gateways must be the same.
		The key contains 8 to 255 characters and must contain at least two types of the following characters:
		Uppercase letters
		Lowercase letters
		Digits
		 Special characters ~!,.:;"(){}[]/@#\$ %^&*+\ =
Description	-	Provides supplementary information about the virtual interface.

If you want to create a virtual interface for another account, configure the parameters based on **Table 4-2**.

Figure 4-2 Creating a virtual interface for another account

< Create Virtual Interface	r (©
* Virtual Interface Owner	◯ Current account
	The virtual interface takes affect only after being accepted by the account that will be using it.
* Region	♥ EU-Dublin ∨
	Select the region where your VPC resides.
* Name	
* Virtual Interface Priority	Preferred Standard
	If virtual interfaces are associated with one connection, load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.
* Connection	-Select- V Q Create Connection
	Bandwidth: Mbil/s
Gateway	Virtual gateway Global DC gateway
* Virtual Gateway	
.,,	Project ID
	Ø
* VLAN	⊘
	Enter a value from 0 to 3,999 based on your network plan. A value of 0 indicates that the connection does not use VLAN. In this case, only one virtual interface can be created. VLAN IDs of the devices used in the on-premises data center and on the cloud must be the same.
* Bandwidth (Mbit/s)	Enable Rate Limiting Learn more
	Multiple virtual interfaces share the handwidth of the connection. Select a value based on service traffic. The maximum value is the handwidth of the connection
	Conde News

Parameter	Example Value	Description
Virtual Interface Owner	Another account	Specifies the account that this virtual interface will be created for. You create a virtual interface for another account so that this account can use your connection to access the VPC. NOTE Virtual interfaces that you create for other users take effect only after other users accept them.
Region	EU-Dublin	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.
Name	vif-123	Specifies the virtual interface name. The name can contain 1 to 64 characters
Virtual Interface Priority	Preferred	Specifies whether the virtual interface wi be preferentially used over other virtual interfaces. There are two options: Preferred and Standard .
		If multiple virtual interfaces are associated with one Direct Connect device, the load is balanced among virtual interfaces with the same priority, while virtual interfaces with different priorities are working in active/standby pairs.
Connection	dc-123	Specifies the connection you can use to connect your on-premises network to Huawei Cloud.
Gateway	Virtual gateway	Specifies the type of the gateway that the virtual interface connects to.
		You can select a virtual gateway or globa DC gateway.
		A virtual gateway is used as an example.
Project ID	-	Specifies the ID of the project that the virtual gateway belongs to. On the management console, hover the cursor over the account name in the upper right corner and select My Credentials . On the My Credentials page, view the project ID
		This parameter is mandatory when Gateway is set to Virtual gateway .

Table 4-2 Parameters for creating a virtual interface for another account

Parameter	Example Value	Description
ID	-	Specifies the ID of the virtual gateway. In the virtual gateway list, hover the cursor over the virtual gateway name and view the name and ID of the virtual gateway. This parameter is mandatory when Gateway is set to Virtual gateway .
Project ID	-	Specifies the ID of the project that the global DC gateway belongs to. On the management console, hover the cursor over the account name in the upper right corner and select My Credentials . On the My Credentials page, view the project ID.
		This parameter is mandatory when Gateway is set to Global DC gateway.
Global DC Gateway ID	-	This parameter is mandatory when Gateway is set to Global DC gateway . Specifies the ID of the global DC gateway. In the global DC gateway list, hover the cursor over the global DC gateway name and view the name and ID of the global
		DC gateway.
VLAN	30	Specifies the ID of the VLAN for the virtual interface. You need to configure the VLAN if you create a standard connection. The VLAN for a hosted connection will be allocated by the partner. You do not need to configure the VLAN.
Bandwidth (Mbit/s)	50	Specifies the bandwidth that can be used by the virtual interface. The bandwidth cannot exceed that of the connection.

Parameter	Example Value	Description
Enable Rate Limiting	Not enabled	Limits the highest bandwidth that can be used by the virtual interface. If this option is enabled, the rate limit gradients are as follows:
		• If the bandwidth is less than or equal to 100 Mbit/s, the rate limit gradient is 10 Mbit/s.
		• If the bandwidth is greater than 100 Mbit/s but is less than or equal to 1,000 Mbit/s, the rate limit gradient is 100 Mbit/s.
		• If the bandwidth is greater than 1,000 Mbit/s but is less than or equal to 100 Gbit/s, the rate limit gradient is 1 Gbit/s.
		 If the bandwidth is greater than 100 Gbit/s, the rate limit gradient is 10 Gbit/s.
		For example, if the bandwidth is 52 Mbit/s, the actual rate limit is 60 Mbit/s. If the bandwidth is 115 Mbit/s, the actual rate limit is 200 Mbit/s.
Tag	example_key1 example_value 1	Adds tags to help you identify your virtual interface. You can change them after the virtual interface is created.
IP Address Family	IPv4	Specifies the address type of the virtual interface.
		IPv4 is selected by default.
Local Gateway	10.0.0.1/30	Specifies the IP address used by Huawei Cloud to connect to your on-premises network. After you configure Local Gateway on the console, the configuration will be automatically delivered to the gateway used by Huawei Cloud.

Parameter	Example Value	Description
Remote Gateway	10.0.0.2/30	Specifies the IP address used by the on- premises data center to connect to Huawei Cloud. After you configure Remote Gateway on the console, you need to configure the IP address on the interface of the on-premises device. CAUTION The IP addresses of the local gateway and remote gateway must be in the same IP address range. Generally, an IP address range with a 30-bit mask is used. The IP addresses you plan cannot conflict with IP addresses used on your on-premises network. Plan an IP address range that will be used at both ends of the connection for network communication between your on-premises data center and the cloud.
Remote Subnet	192.168.51.0/2 4,10.1.123.0/24	Specifies the subnets and masks of your on-premises network. If there are multiple subnets, use commas (,) to separate them.
Routing Mode	BGP	Specifies whether static routing or dynamic routing is used to route traffic between your on-premises network and the cloud network. If there are or will be two or more connections, select BGP routing for higher availability.
BGP ASN	12345	Specifies the ASN of the BGP peer. This parameter is required when BGP routing is selected.
BGP MD5 Authenticatio n Key	Qaz12345678	 Specifies the password used to authenticate the BGP peer using MD5. This parameter can be set when BGP routing is selected, and the parameter values on both gateways must be the same. The key contains 8 to 255 characters and must contain at least two types of the following characters: Uppercase letters Lowercase letters Digits Special characters ~!,.:;"(){}[]/@#\$ %^&*+\]=

Parameter	Example Value	Description
Description	-	Provides supplementary information about the virtual interface.

NOTE

When you configure the local and remote gateways, note the following:

- The local gateway is used by Huawei Cloud for connecting to your equipment room. After you configure **Local Gateway** on the console, the configuration will be automatically delivered to the gateway used by Huawei Cloud.
- The remote gateway is used by your equipment room for connecting to Huawei Cloud. After you configure **Remote Gateway** on the console, you also need to configure the gateway deployed in your equipment room.
- The local and remote gateways must use the same CIDR block and cannot conflict with service IP addresses on the network.
- 4. Click Create Now.

When the status changes to **Normal**, the virtual interface has been created.

5. Ping the IP address of a server in the VPC from your on-premises data center to test network connectivity.

4.2 Viewing a Virtual Interface

Scenario

You can view details about a virtual interface.

Procedure

- 1. Go to the Virtual Interfaces page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the virtual interface list, locate the virtual interface and click its name to go to the **Basic Information** page of the virtual interface.

4.3 Modifying a Virtual Interface

Scenario

After a virtual interface is created, you can modify its name, remote subnet, description, and priority.

Procedure

1. Go to the Virtual Interfaces page.

- 2. In the upper left corner of the page, click and select a region and project.
- 3. In the virtual interface list, locate the virtual interface you want to modify and click **Modify** in the **Operation** column.
- 4. Modify the name, remote subnet, and description, and then click **OK**.

4.4 Deleting a Virtual Interface

Scenario

You can delete a virtual interface if you do not need it any longer.

- 1. Go to the Virtual Interfaces page.
- 2. In the upper left corner of the page, click 💽 and select a region and project.
- 3. In the virtual interface list, locate the virtual interface you want to delete and click **Delete** in the **Operation** column.
- 4. In the displayed dialog box, enter **DELETE** and click **OK**.

5 Partner Connections

5.1 Operations Connections

Creating an Operations Connection

Scenario

If you are a partner, you can create an operations connection.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the upper right corner, click **Create Operations Connection**.
- 4. Configure the parameters and click **Create Now**.
- 5. Confirm the order and click **Pay**.
- 6. Click Pay.

Viewing an Operations Connection

Scenario

You can view details about an operations connection that you have created.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. Locate the operations connection you want to view and click its name.
- 4. View details about the operations connection.

Modifying an Operations Connection

Scenario

You can modify the name, bandwidth, equipment room address, and description of an operations connection.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 2 and select a region and project.
- 3. In the operations connection list, locate the operations connection you want to modify and click **More** > **Modify** in the **Operation** column.
- 4. Modify the connection and then click **OK**.

Unsubscribing from an Operations Connection

Scenario

You can unsubscribe from an operations connection if you no longer need it.

Prerequisites

Delete the virtual gateway and virtual interface associated with your connection, delete the connection, and unsubscribe from the operations connection.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the operations connection list, locate the operations connection that you want to unsubscribe from and choose **More** > **Unsubscribe** in the **Operation** column.
- 4. In the operations connection list, locate the target operations connection and click **Unsubscribe from Resource** in the **Operation** column.
- 5. On the displayed **Unsubscribe** page, confirm the amount to be refunded.
- 6. Click **Confirm**.

Renewing an Operations Connection

Scenario

You can renew the subscription if an operations connection is about to expire.

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the operations connection list, locate the operations connection you want to renew and choose **More** > **Renew** in the **Operation** column.
- 4. Set the duration that you want to renew the connection and click **Pay**. Then pay the order as prompted.

5.2 Hosted Connections

Creating a Hosted Connection

Scenario

If you are a partner, you can create a hosted connection for your user.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the upper right corner, click **Create Hosted Connection**.
- 4. Configure the parameters and click **OK**.

Viewing a Hosted Connection

Scenario

You can view details about a hosted connection you have created as a partner.

Procedure

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the operations connection list, locate the operations connection that the hosted connection depends on and click **Manage Hosted Connection** in the **Operation** column.
- 4. In the hosted connection list, locate the hosted connection you want to view

and click \checkmark on the left of its name to view the details.

Modifying a Hosted Connection

Scenario

You can modify the name, bandwidth, equipment room address, and description of a hosted connection.

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 💟 and select a region and project.
- 3. In the operations connection list, locate the operations connection that the hosted connection depends on and click **Manage Hosted Connection** in the **Operation** column.
- 4. In the hosted connection list, locate the hosted connection you want to modify and click **Modify** in the **Operation** column.
- 5. Modify the hosted connection and click **OK**.

Deleting a Hosted Connection

Scenario

You can delete a hosted operation if you do not need it any longer.

- 1. Go to the **Connections** page.
- 2. In the upper left corner of the page, click 🖸 and select a region and project.
- 3. In the operations connection list, locate the operations connection that the hosted connection depends on and click **Manage Hosted Connection** in the **Operation** column.
- 4. In the hosted connection list, locate the hosted connection you want to delete and click **Delete** in the **Operation** column.
- 5. In the displayed dialog box, click **OK**.

6 Network Topology

Scenario

After creating a connection, you can view the connection status and resource information in the Direct Connect network topology.

Procedure

- 1. Go to the **Network Topology** page.
- 2. In the upper left corner of the page, click and select a region and project.
- 3. View your connections, their virtual gateways and virtual interfaces, and VPCs that can be accessed over these connections.

NOTE

If a site survey is being performed, cabling is not complete, or the specification is being changed, the connection is displayed as abnormal in the network topology. You can check its status on the connection list page.

7 Cloud Eye Monitoring

7.1 Overview

Monitoring is critical to ensuring the performance, reliability, and availability of a service. Monitoring data lets you keep track of the status of your resources. Cloud Eye collects and displays monitoring data for you in a convenient, visualized manner. You can use Cloud Eye to automatically monitor connections in real time and manage alarms and notifications, so that you can keep track of the performance of each connection.

To learn more information, see the following topics:

- Metrics
- Network Quality Metrics (Plug-ins Required)
- Setting Alarm Rules
- Viewing Monitoring Metrics

7.2 Metrics

Function

Table 7-1 describes the metrics reported by Direct Connect to Cloud Eye as well as their namespace and dimensions. You can use the management console to query the metrics of the monitored objects and alarms generated for Direct Connect.

NOTE

You can view metrics of standard connections, full-service connections (dedicated port), and hosted connections.

Namespace

SYS.DCAAS

Metrics

 Table 7-1 Direct Connect metrics

ID	Metric	Description	Value Range	Monitored Object	Monitoring Interval
network_inc oming_bits_ rate	Networ k Incomi ng Bandwi dth	Bit rate for inbound data to the Direct Connect side of a connection Unit: bit/s	≥ 0 bits/s	Connections and historical connections	1 minute
network_ou tgoing_bits_ rate	Networ k Outgoi ng Bandwi dth	Bit rate for outbound data from the Direct Connect side of a connection Unit: bit/s	≥ 0 bits/s	Connections and historical connections	1 minute
network_inc oming_byte s	Networ k Incomi ng Traffic	Number of bytes for inbound data to the Direct Connect side of a connection Unit: byte	≥ 0 bytes	Connections and historical connections	1 minute
network_ou tgoing_byte s	Networ k Outgoi ng Traffic	Number of bytes for outbound data from the Direct Connect side of a connection Unit: byte	≥ 0 bytes	Connections and historical connections	1 minute
network_inc oming_pack ets_rate	Networ k Incomi ng Packet Rate	Packet rate for inbound data to the Direct Connect side of a connection Unit: Packet/s	≥ 0 packets /s	Connections and historical connections	1 minute
network_ou tgoing_pack ets_rate	Networ k Outgoi ng Packet Rate	Packet rate for outbound data from the Direct Connect side of a connection Unit: Packet/s	≥ 0 packets /s	Connections and historical connections	1 minute

ID	Metric	Description	Value Range	Monitored Object	Monitoring Interval
network_inc oming_pack ets	Networ k Incomi ng Packets	Number of packets for inbound data to the Direct Connect side of a connection Unit: Packet	≥ 0 packets	Connections and historical connections	1 minute
network_ou tgoing_pack ets	Networ k Outgoi ng Packets	Number of packets for outbound data from the Direct Connect side of a connection Unit: Packet	≥ 0 packets	Connections and historical connections	1 minute

Dimensions

Кеу	Value
direct_connect_id	Connection
virtual_interface_id	Virtual interface
history_direct_conne ct_id	Historical connection

7.3 Network Quality Metrics (Plug-ins Required)

The network quality of connections is monitored using two plug-ins, and there are two key metrics: network latency and packet loss rate.

Direct Connect provides two monitoring plug-ins:

- dc-nqa-collector: monitors the connections requested on the Direct Connect console.
- history-dc-nqa-collector: monitors historical connections.

For details, see Installing the Direct Connect Metric Collection Plug-ins.

- Automated connections are requested using the console and can be self-service or fullservice connections. Each connection has at least a virtual gateway and a virtual interface, and their routes are automatically advertised. Connections in most regions are automated connections.
- Historical connections are requested by email or phone. They do not have virtual gateways and virtual interfaces, and their routes must be configured manually. Historical connections exist only in some regions.

Constraints

- For each virtual interface, only one VM can be configured for monitoring, or monitoring data may fail to be reported.
- No images can be configured for the VM where the Direct Connect monitoring plug-ins are installed, or monitoring data may fail to be reported.
- The VM where the Direct Connect monitoring plug-ins are installed must be in the same account and region as the virtual interface.

Procedure

- Configure the Direct Connect plug-ins.
 For details, see Installing Direct Connect Metric Collection Plug-ins.
- 2. Configure the return route for the detection source IP address in the onpremises data center.

Example route (A Huawei-developed device is used an example.) ip route-static 192.168.1.100 255.255.255 10.0.0.1

NOTE

This is to add a return route whose destination is the detection source IP address used in the on-premises data center and next hop is the local gateway configured on the corresponding virtual interface. This ensures that the return packets from the onpremises data center can reach the detection source in the VPC through the correct path.

Metrics

Table 7-2 Netwo	rk quality metrics
-----------------	--------------------

ID	Metric Name	Description	Value Range	Monitored Object	Monitorin g Interval
latency	Latency	Network latency of a connection Unit: ms	≥ 0 ms	Connection s and historical connection s	1 minute

ID	Metric Name	Description	Value Range	Monitored Object	Monitorin g Interval
packet_l oss_rate	Packet Loss Rate	Packet loss rate of a connection Unit: Percentage	0–100%	Connection s and historical connection s	1 minute

Dimensions

Кеу	Value
virtual_interface_id	Virtual interface (associated with an automated connection)
history_direct_conne ct_id	Historical connection

Helpful Links

You can delete the **plugins** directory to delete the installed plug-ins based on your service requirements.

Command:

cd /usr/local/uniagent/extension/install/telescope/ rm -rf plugins/

Example:



NOTE

The **plugins** directory is automatically created when the plug-ins are installed. Deleting this directory does not affect your services.

7.4 Installing Metric Collection Plug-ins

The network quality of connections is monitored using two plug-ins, and there are two key metrics: network latency and packet loss rate.

There are two plug-ins:

- dc-nqa-collector: monitors the connections requested on the Direct Connect console.
- history-dc-nqa-collector: monitors historical connections.

NOTE

Automated connections are requested using the console and can be self-service or full-service connections. Each connection has at least a virtual gateway and a virtual interface, and their routes are automatically advertised. Connections in most regions are automated connections.

Historical connections are requested by email or phone. They do not have virtual gateways and virtual interfaces, and their routes must be configured manually. Historical connections exist only in some regions.

Constraints

The plug-ins can only be installed on Linux ECSs that are in the same VPC as the connection.

Prerequisites

Cloud Eye is available in the region.

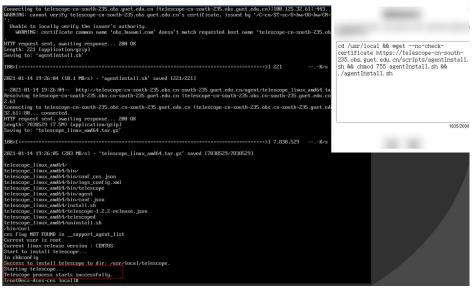
Procedure

Step 1 Install the Agent provided by Cloud Eye for server monitoring.

- 1. Log in to the management console.
- 2. Under Management & Deployment, select Cloud Eye.
- 3. In the navigation pane on the left, choose **Server Monitoring** > **Elastic Cloud Server**.
- 4. Click Install and configure the Agent.
- Select the Agent based on the server type.
 (x86 servers with image version of 7.0 or later are recommended.)
- 6. Copy the installation command and run it on the server.

rootVecs=dces-ces ")# [rootVecs=dces-ces "]# cd_vusr/local åå wget --no-check-certificate https://telescope-cn-south-235.obs.guet.edu.cn/scripts/age [nstall.sh åå chmod 755 agentInstall.sh åå ./agentInstall.sh_

If "Telescope process starts successfully" is displayed, the Agent has been installed.



Step 2 Upload the plug-ins to an OBS bucket.

- 1. Log in to the management console.
- 2. Choose Service List > Storage > Object Storage Service.
- 3. Click Create Bucket.
- 4. Configure the parameters.

Enter a bucket name and set **Bucket Policy** to **Public Read**.

The public read permission allows any user to read objects in the bucket without identity authentication. To ensure data security, change the bucket policy to **Private** after configuring the plug-ins.

- 5. Click **Create Now**.
- 6. Click the name of the created bucket in the bucket list.
- 7. On the **Overview** page of the bucket, copy the access domain name.
- 8. In the navigation pane on the left, click **Objects**.
- 9. On the **Objects** page, click **Upload Object**.
- 10. Decompress the **dc_plugins_x86.rar** and upload the decompressed file to the OBS bucket.

Step 3 Use the one-click installation script dc-installer.sh to configure the plug-ins.

- 1. Log in to the ECS as user **root**.
- Create the user.txt file in the usr/local/ directory and add user information to the file.
 cd /usr/local/

ca /usr/loca vi user.txt

The **user.txt** file contains the path of the plug-ins in the OBS bucket, resource ID, and remote IP address.

 Path of the plug-ins in the OBS bucket: Select dc-nqa-collector for automated connections. Select history-dc-nqa-collector for historical connections. The path is in the following format:

https://cesplugin.obs.xxx.edu.cn/dc-nqa-collector

 Information about monitored resources: Each resource occupies a line, and consists of a resource ID and a remote IP address separated from the resource ID by a comma (,). To add multiple resources, add lines in the same format, as shown below:

75e09ecf-xxxx-xxx-xxx-e1295e03e5dc,x.x.x.x

- Resource ID: If dc-nqa-collector is used, resource ID is the virtual interface ID, which can be queried on the Virtual Interfaces page of the Direct Connect console. If history-dc-nqa-collector is used, resource ID is the historical connection ID, which can be queried on the Historical Connections page of the Direct Connect console.
- Remote IP address: the IP address of the remote gateway or an IP address in the remote subnet, which will be used to ping an IP address in the VPC. If dc-nqa-collector is used, you can query the IP

address of the remote gateway on the **Virtual Interfaces** page. If history-dc-nqa-collector is used, you can query the IP address in the remote subnet on the **Historical Connections** page.

NOTE

Ensure that each resource ID matches one remote IP address. You cannot enter multiple IP addresses or CIDR blocks.

After the plug-ins are installed, if you want to add more resources for monitoring, edit the **user.txt** file by adding new IDs and IP addresses in sequence, and then perform **Step 3.3**.

3. Execute the one-click installation script.

The path in the command is where the script is stored in the OBS bucket.

The following is an example command.

cd /usr/local && wget --no-check-certificate https://xxxx.cn/dc-installer.sh && chmod 755 dc-installer.sh && ./dc-installer.sh

froot@ees-dees-dees-dees-dees-dees-dees-deet-eertificate https://desplugin.obs.en-south-235.guet.edu.d ler.sh && chmod 755 dc-installer.sh && ./dc-installer.sh	cn/dc-instal
64 bytes from 1.1.1.1: icmp_seq=4 ttl=254 time=6.91 ms 64 bytes from 1.1.1.1: icmp_seq=5 ttl=254 time=9.76 ms	
1.1.1.1 ping statistics 5 packets transmitted, 5 received, 8% packet loss, time 4006ms rtt min/avg/max/mdev = 3.063/39.049/176.375/68.309 ms Ping success. Continue to install dc-nga-collector 2821-81-14 19:38:11-1 https://ccesplugin.obs.cn-south-235.guet.edu.cn/dc-nga-collector Resolving cesplugin.obs.cn-south-235.guet.edu.cn (cesplugin.obs.cn-south-235.guet.edu.cn) 100.125.32.61 Connecting to cesplugin.obs.cn-south-235.guet.edu.cn (cesplugin.obs.cn-south-235.guet.edu.cn).1100.125.32.61 Connecting to cesplugin.obs.cn-south-235.guet.edu.cn (cesplugin.obs.cn-south-235.guet.edu.cn).1100.125.32.61 WMRNING: cannot verify cesplugin.obs.cn-south-235.guet.edu.cn (cesplugin.obs.cn-south-235.guet.edu.cn). ': Unable to locally verify the issuer's authority. WARNING: certificate common name 'obs.huawei.com' doesn't match requested host name 'cesplugin.obs.cn-south-23	cd /usr/lc certificat south-235. chmod 755 installer.
HTTP request sent, awaiting response 200 OK Length: 8066624 (?.?M) [application/octet-stream] Saving to: 'dc-nga-collector'	
108×[=======>] 8,866,624K/s	
2021-01-14 19:30:11 (237 MB/s) - 'dc-nga-collector' saved [8066624/8066624]	
2821-81-14 19:38:11 https://ccsplugin.obs.cn-south-235.guet.edu.cn/dc-nga-conf.json Resolving ccsplugin.obs.cn-south-235.guet.edu.cn (ccsplugin.obs.cn-south-235.guet.edu.cn) 180.125.32.61 Connecting to ccsplugin.obs.cn-south-235.guet.edu.cn (ccsplugin.obs.cn-south-235.guet.edu.cn)1180.125.32.611:443 MRNING: cannot verify ccsplugin.obs.cn-south-235.guet.edu.cn's certificate, issued by '/C-cn/ST-sc/D=hw/OU-hw/CN=L ':	
Unable to locally verify the issuer's authority. WARMING: certificate common name 'obs.huawei.com' doesn't match requested host name 'cesplugin.obs.cn-south-235	.guet.edu.cn
HTTP request sent, awaiting response 200 OK Length: 90 [application/json] Saving to: 'dc-nqa-conf.json'	
108/:[======>] 90K/s	in Øs
2021-01-14 19:30:11 (4.00 MB/s) - 'dc-nga-conf.json' saved [90/90]	
<pre>wv: 'dc-nqa-user-conf.json' and '/usr/local/telescope/plugins/dc/dc-nqa-user-conf.json' are the same file cat: /usr/local/telescope Stopping telescope Stop telescope Stop telescope Stop telescope Telescope process starts successfully ok, dc-nqa-collector install successf </pre>	

Step 4 View monitoring information.

- 1. Log in to the management console.
- 2. Under Management & Deployment, select Cloud Eye.
- 3. In the navigation pane on the left, choose **Server Monitoring** > **Elastic Cloud Server**.

Ensure that the Agent is in the **Running** state.

- 4. In the navigation pane on the left, choose **Cloud Service Monitoring** > **Direct Connect**.
- 5. Click the name of the monitored object to view the network latency and packet loss rate.

----End

7.5 Configuring an Alarm Rule

Scenario

You can configure alarm rules to customize monitored objects and notification policies and to learn connection status at any time.

Procedure

- 1. Log in to the management console.
- 2. On the console homepage, click \bigcirc in the upper left corner and select the desired region and project.
- 3. In the service list, choose Management & Governance > Cloud Eye.
- 4. In the navigation pane on the left, choose **Alarm Management** > **Alarm Rules**.
- 5. On the Alarm Rules page, click Create Alarm Rule.
- 6. Click **Create**.

After the alarm rule is created, you will be notified when an alarm is triggered.

NOTE

For more examples of creating alarm rules, see **Cloud Eye User Guide**.

7.6 Viewing Metrics

- 1. Log in to the management console.
- 2. On the console homepage, click in the upper left corner and select the desired region and project.
- 3. Click to display Service List and choose Management & Governance > Cloud Eye.
- 4. In the navigation pane on the left, choose **Cloud Service Monitoring**. In the displayed list, click **Direct Connect DCAAS**.

The **Details** page is displayed.

- 5. Select the resource type from the drop-down list. Example:
 - Cloud service: Direct Connect
 - Resource name: Connections
- 6. Click the **Resources** tab.
- 7. Locate the target instance and click **View Metric** in the **Operation** column.
 - You can view data of the last 1, 3, 12, or 24 hours, or last 7 days. You can also specify a time period.

8 Permissions Management

8.1 Creating a User and Granting Permissions

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

- Create IAM users for employees based on the organizational structure of your enterprise. Each IAM user has their own security credentials, providing access to cloud resources.
- Grant only the permissions required for users to perform a specific task.
- Entrust another account or cloud service to perform professional and efficient O&M on your cloud resources.

Skip this part if your account does not require individual IAM users.

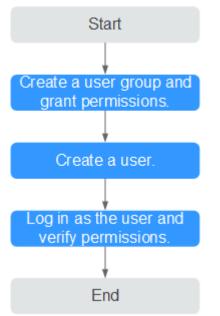
Figure 8-1 shows the process for granting permissions.

Prerequisites

Before you assign permissions to a user group, you need to understand Direct Connect permissions that can be assigned to the user group and select permissions based on actual requirements. For details about the system permissions of Direct Connect, see **Permissions**. For the system policies of other services, see **System Permissions**.

Process Flow





1.

Create a user group on the IAM console and assign the **Direct Connect Administrator** policy to the group.

- 2. Create a user on the IAM console and add the user to the group created in **1**.
- 3.

Log in to the Direct Connect console using the created user and verify that the user has read-only permissions for Direct Connect.

- In the service list, choose Networking > Direct Connect. Click Create Connection in the upper right corner. If the connection is successfully created, the Direct Connect Administrator policy has already taken effect.
- Choose any other service in the Service List. A message will appear indicating that you have no sufficient permissions to access the service.

8.2 Example Custom Policies

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

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 created for Direct Connect.

Example Custom Policies

• Example 1: Allowing users to update a virtual gateway

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
            "dcaas:vgw:update"
        ]
        }
    ]
}
```

• Example 2: Denying users to delete a connection

A deny policy must be used together with other policies. If permissions assigned to a user contain both Allow and Deny actions, the Deny action takes precedence over the Allow action.

The following method can be used if you need to assign permissions of the **DCAAS FullAccess** policy to a user but also forbid the user from deleting connections. Create a custom policy for denying connection deletion, and assign both policies to the group the user belongs to. Then the user can perform all operations on Direct Connect except deleting connections.

The following is an example of a deny policy:

```
"Version": "1.1",
"Statement": [
{
"Effect": "Deny",
"Action": [
"dcaas:directConnect:delete"
]
}
]
```

{

}

{

}

• 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": [
         "vpc:vpcs:list",
         "vpc:subnets:get",
         "vpc:routes:list"
      1
   },
   {
      "Effect": "Allow",
      "Action": [
         "dcaas:vif:list",
         "dcaas:vgw:list",
         "dcaas:directConnect:list"
      ]
  }
]
```

9 Using CTS to Collect Direct Connect Key Operations

9.1 Key Operations Recorded by CTS

With CTS, you can record operations associated with Direct Connect for later query, audit, and backtrack operations.

 Table 9-1 lists the operations that can be recorded by CTS.

Operation	Resource Type	Trace Name
Creating a connection	dcaasConnection	createConnection
Modifying a connection	dcaasConnection	modifyConnection
Deleting a connection	dcaasConnection	deleteConnection
Creating a virtual gateway	dcaasVirtualGateway	createVirtualGateway
Modifying a virtual gateway	dcaasVirtualGateway	modifyVirtualGateway
Deleting a virtual gateway	dcaasVirtualGateway	deleteVirtualGateway
Creating a virtual interface	dcaasVirtualInterface	createVirtualInterface
Modifying a virtual interface	dcaasVirtualInterface	modifyVirtualInterface

Table 9-1 Direct Connect operations that can be recorded by CTS

C	Operation	Resource Type	Trace Name
	Deleting a virtual Interface	dcaasVirtualInterface	deleteVirtualInterface

9.2 Viewing Traces

Scenario

After you enable CTS, the system starts recording operations on cloud resources. You can view traces of the last seven days on the CTS console.

This topic describes how to query these records.

- 1. Log in to the management console.
- 2. On the console homepage, click in the upper left corner and select the desired region and project.
- 3. Click to display Service List and choose Management & Governance > Cloud Trace Service.
- 4. In the navigation pane on the left, choose **Trace List**.
- 5. Specify filtering criteria. The following filters are available:
 - **Trace Type**, **Trace Source**, **Resource Type**, and **Search By** Select a filter criterion from the drop-down list.
 - If you select Trace name for Search By, you need to specify a trace name.
 - If you select Resource ID for Search By, you need to specify a resource ID.
 - If you select **Resource name** for **Search By**, you need to specify a resource name.
 - **Operator**: Select a user who performs operations.
 - Trace Status: Select All trace statuses, Normal, Warning, or Incident.
 - Time range: You can specify the time period to query traces.
- 6. Click \checkmark on the left of the record to be queried to extend its details.
- 7. Locate a trace and click **View Trace** in the **Operation** column.

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