

Direct Connect

Getting Started

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1 Overview

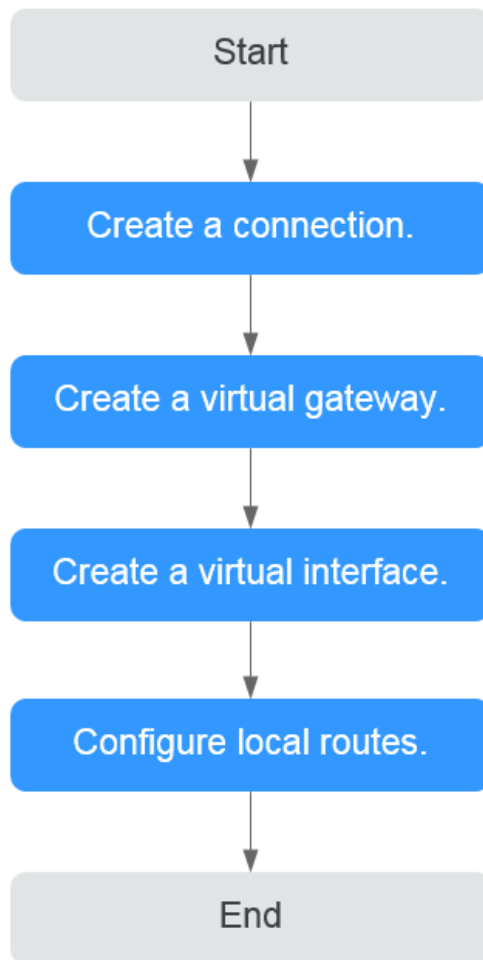
When your on-premises network needs to communicate with the VPCs, you can create a Direct Connect connection on the console to establish network connectivity between your on-premises and the cloud.

 **NOTE**

The telecom carrier needs to perform a site survey and lay the leased line, which takes about two or three months. It is recommended that you arrange enough time for the project in advance.

Figure 1-1 shows the whole process for connecting your on-premises environment to HUAWEI CLOUD.

Figure 1-1 Process for establishing network connectivity



Registering with HUAWEI CLOUD and Completing Real-name Authentication

You must have a HUAWEI CLOUD account to access the Direct Connect console. If you do not have an account, register one with HUAWEI CLOUD.

1. Visit the [HUAWEI CLOUD official website](#).
2. Click **Register** in the upper right corner.

Provide the required information. For details, see [Registering with HUAWEI CLOUD](#).

If the registration is successful, the system automatically redirects you to your personal information page.

3. Complete real-name authentication for your account. For details, see [Individual Real-Name Authentication](#).

After registration, your account will have permissions to access the Direct Connect service, as well as all other HUAWEI CLOUD services.

Topping Up Your Account

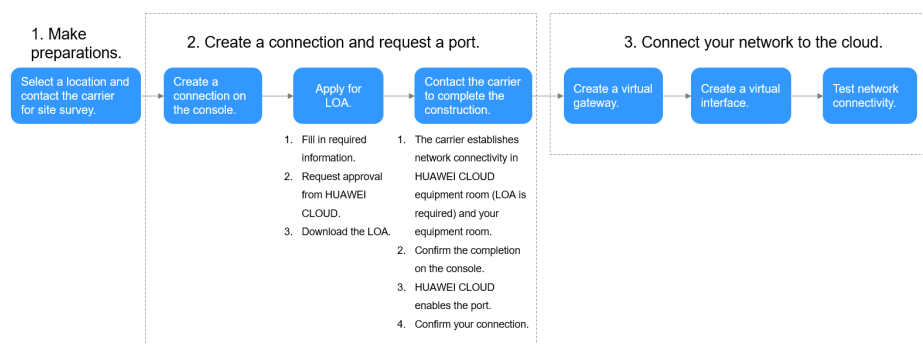
Top up your account to ensure that your account has sufficient balance.

- For details about Direct Connect pricing, see [Product Pricing Details](#).
- For details about how to top up an account, see [Topping Up an Account](#).

Required Steps

To establish network connectivity, you need to:

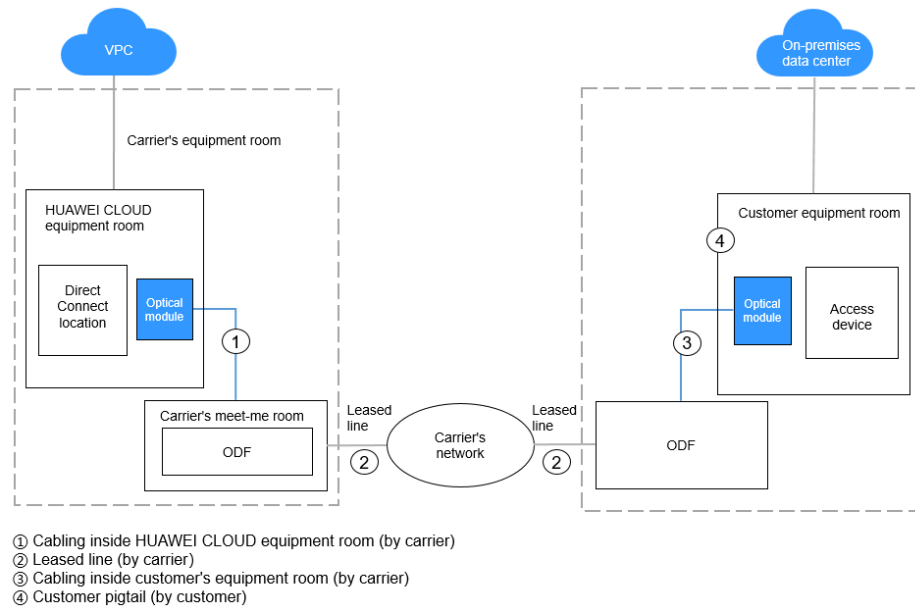
1. Make preparations.
Before requesting a standard connection, you need to confirm the detailed address of the Direct Connect location and the port availability, contact the carrier for a site survey, and confirm the fees. For details, see [Preparations](#).
2. Create a connection and request a port for the connection and work with the carrier and HUAWEI CLOUD to connect on-premises network to the public cloud.
3. Create a virtual gateway and a virtual interface to connect your on-premises network to HUAWEI CLOUD.



The leased line construction process varies depending on the networking topology. The following figure shows the logic of two common networking topologies. Consult your carrier for the actual networking topology.

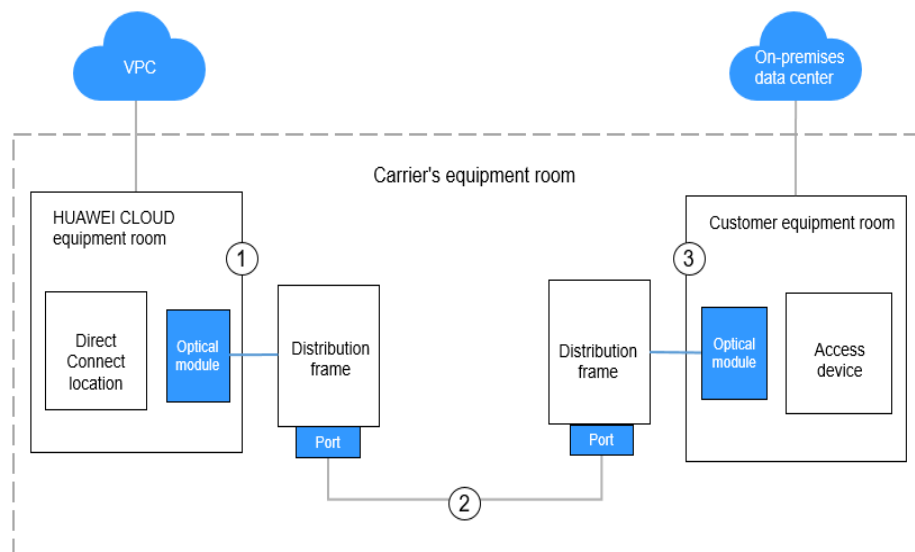
- **Figure 1-2** shows the networking topology of leased line construction when the equipment room of your on-premises data center is in a different campus from that at the Direct Connect location.

Figure 1-2 Networking topology



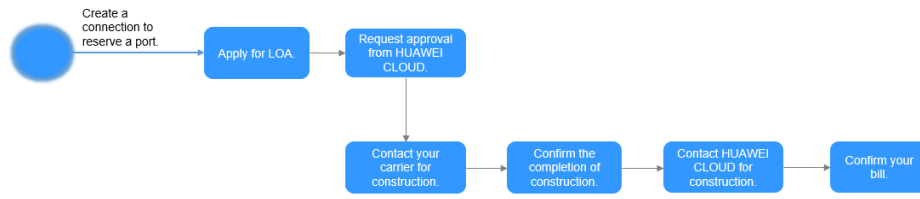
- **Figure 1-3** shows the networking topology of leased line construction when the equipment room of your on-premises data center is in the same campus as that of the location.

Figure 1-3 Networking topology



Direct Connect Connection Progress

You can learn about the connection creation progress from the management console.



2 Preparations

Before enabling Direct Connect, you need to make full preparations, including selecting an appropriate Direct Connect location and consulting the carrier about the site survey.

Selecting a Direct Connect Location

When selecting a location, you need to consider the distance to your data center, carrier, and port.

- Distance to your data center
Select a location nearest to your data center to reduce network latency. The telecom carriers and bandwidth capabilities vary at different locations.
- Carrier
Select a carrier that can best meet your service requirements. Generally, you can choose one from carriers such as China Unicom, China Telecom, and China Mobile.
- Port
Decide what type of port you want to use, an optical port or electrical port.
 - Optical port: The carrier directly provides an optical path on the transmission network for the end user. The optical port speed is infinite depends on auto-negotiation rate of 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. According to industry standards, this type of port is used 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 that can transmit data for more than 10 km, or you need a 40GE or 100GE port, you need to purchase optical modules by yourself.
- Ensure that the leased line provider can provide 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.

Table 2-1 lists available Direct Connect locations. To obtain detailed equipment room address of a location, contact the Direct Connect manager or [submit a service ticket](#).

Table 2-1 Direct Connect locations

Geographic Region	City	Region	Location	IDC
Chinese mainland	Beijing	CN North-Beijing4	Langfang-Guangyang-Huawei	Huawei
			Beijing-Tongzhou-Huitian	Huitian
			Beijing-Yizhuang-Centrin	Centrin Data Systems
			Beijing-Yizhuang-Yatai	Yatai Zhongli
Chinese mainland	Beijing	CN North-Ulanqab1	Ulanqab-Jining-Huawei	Huawei
Chinese mainland	Shanghai	CN East-Shanghai2	Shanghai-Pudong-GDS	GDS
			Shanghai-Baoshan-Baoxin	Baoxin
			Shanghai-Jiading-Sinnet	Sinnet
	Suzhou	CN East-Shanghai1	Suzhou-Kunshan-GDS	GDS
			Suzhou-Wuzhong-Guoke	China Unicom
	Guangzhou	CN South-Guangzhou	Guangzhou-Huangpu-Huaxinyuan	Bigone
			Guangzhou-Fanyu-University town	Bigone
	Guiyang	CN Southwest-Guiyang1	Guiyang-Gui'an-Mobile	China Mobile
			Guiyang-Gui'an-Unicom	China Unicom
	Asia Pacific	Hong Kong	CN-Hong Kong	Hong Kong-Sha Tin-Telecom

Geographic Region	City	Region	Location	IDC
			Hong Kong-Sai Kung-Mobile	China Mobile
			Bangkok	AP-Bangkok
			Bangkok-TRUE	TRUE
	Singapore	AP-Singapore	Singapore-DataPro	Equinix
			Singapore-Global Switch	Global Switch
South Africa	Johannesburg	AF-Johannesburg	Johannesburg-Vodacom	Vodacom
			Johannesburg-MTN	MTN
			Johannesburg-IS Parklands	Internet Solutions Parklands
			Johannesburg-Teraco	Teraco
Latin America	Mexico	LA-Mexico City1	Mexico-Ixtlahuaca	Ixtlahuaca
	Sao Paulo	LA-Sao Paulo1	Sao Paulo-Telefonica TB1	Telefonica TB1
			Sao Paulo-Equinix	Equinix
			Sao Paulo-ODATA	OData
	Santiago	LA-Santiago	Santiago-Paine	Paine
			Santiago-Claro	Claro

Site Survey by the Carrier

After you select a location, contact the carrier for a site survey.

- Consult the carrier about the way 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.
- Submit an application to HUAWEI CLOUD for conducting a site survey in the equipment room.
The application must include the name, ID card number, contact information of the personnel who will go to the equipment room for the site survey.

 **NOTE**

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

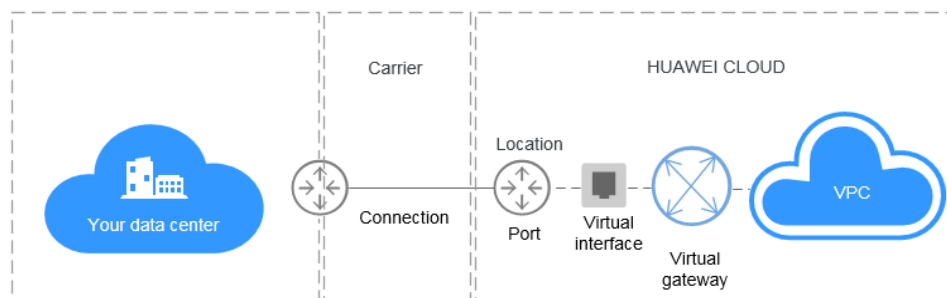
3. After the application is approved, HUAWEI CLOUD will assist the carrier in entering the equipment room for completing the site survey within two working days.
4. Request the carrier to carry out the site survey and confirm the fees, including the costs of:
 - Port (paid to HUAWEI CLOUD) and one-time setup (free for now)
 - Leased line (paid to the carrier)
 - In-building cabling

3 Step 1: Create a Connection

You can choose self-service installation or full-service installation from HUAWEI CLOUD.

Figure 3-1 shows how Direct Connect connects your on-premises data center to a VPC.

Figure 3-1 Connecting your data center to a VPC

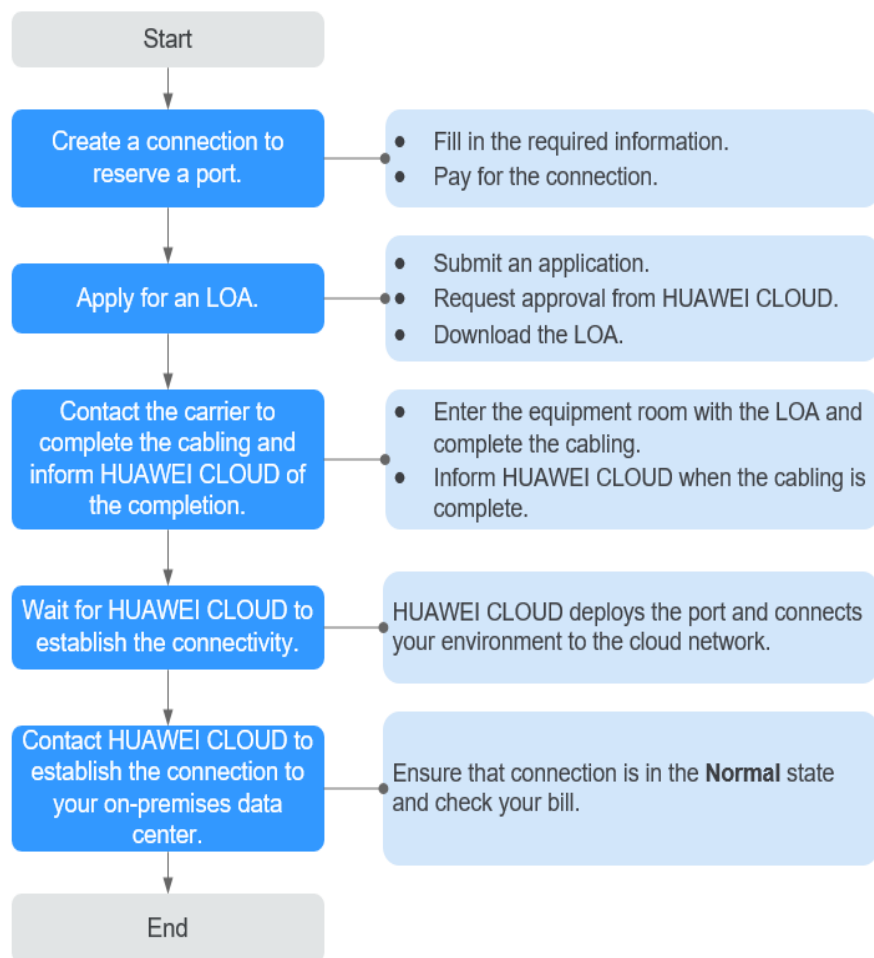


Self-Service Connection

- **Scenario**

A connection consists of a line that you leased from a carrier and a port provided by HUAWEI CLOUD. Create a connection and use it to connect your on-premises data center to the Direct Connect location that you have selected to build a hybrid cloud.

After you create a connection on the console, HUAWEI CLOUD provides you with a port for exclusive use. To establish the connection, you need to connect the leased line to the Direct Connect location that you have selected. **Figure 3-2** shows the entire process of connecting on-premises data center to HUAWEI CLOUD using Direct Connect.

Figure 3-2 Self-service installation process**NOTE**

A Letter of Authorization (LOA) is required for entering HUAWEI CLOUD's equipment room for cabling.

Procedure



- a. Create a connection.
 - i. Log in to the management console.
 - ii. On the console homepage, click  in the upper left corner and select the desired region and project.
 - iii. Hover on  to display **Service List** and choose **Networking > Direct Connect**.
 - iv. In the navigation pane on the left, choose **Direct Connect > Connections**.
 - v. Click **Create Connection**. Select **Self Service Installation**.
 - vi. On the **Create Connection** page, enter information about the equipment room and select the Direct Connect location and port based on [Table 3-1](#).

Table 3-1 Parameter description

Parameter	Description	Example Value
Region	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.	CN East-Shanghai1
Connection Name	Specifies the name of your connection.	dc-123
Location	Specifies the Direct Connect location where your leased line can be connected to.	Suzhou-Kunshan-GDS
Carrier	Specifies the carrier that provides the leased line.	China Telecom
Port Type	Specifies the type of the port used by the connection. There are two types of ports: 1GE single-mode optical port and 10GE single-mode optical port.	1GE single-mode optical port
Leased Line Bandwidth	Specifies the bandwidth of the connection in the unit of Mbit/s. This is the bandwidth of the leased line you bought from the carrier.	100 Mbit/s
Your Equipment Room Address	Specifies the address of your equipment room. The address must be specific to the floor on which your equipment room is located, for example, XX Equipment Room, XX Building, No. XX, Huajing Road, Pudong District, Shanghai.	-
Description	Provides supplementary information about the connection.	N/A
Billing Mode	Specifies the billing model of the connection. Currently, only Yearly/ Monthly is supported.	Yearly/Monthly
Required Duration	Specifies how long the connection will be used.	5 months

Parameter	Description	Example Value
Auto-renew	Specifies whether to automatically renew the subscription to ensure service continuity. For example, if the required duration is three months, the system automatically renews the subscription for another three months.	5 months
Contact Person/ Phone Number/ Email	Specifies information about the person who is responsible for your connection. CAUTION If the contact information is not provided, your account information will be queried. This will increase the review period.	Tom +086 13912345678 (Chinese mainland) Tom@mail.com

- vii. Pay for the order.
- b. Connect your on-premises data center to the cloud.
 - i. After the payment is complete, switch back to the connection list. Enter the information required for the LOA, select the created connection, and click **Apply for LOA**.

 **NOTE**

Apply for the LOA at least three days before the construction starts. Provide the required information as prompted during the application. Otherwise, your approval may be rejected.

- ii. Click **Confirm** to submit the application and wait for approval from HUAWEI CLOUD. Generally, it takes about two working days to obtain the approval.
- iii. Contact your carrier for completing the cabling in the HUAWEI CLOUD equipment room and ensure that construction personnel bring the LOA when they enter the equipment room.
- iv. After the cabling is complete, obtain the line code and in-building cable label from your carrier and click **Report Completion**.
- v. Contact HUAWEI CLOUD to connect the leased line to the gateway provided by HUAWEI CLOUD.
- vi. The construction requires two working days. After the construction is completed, click **Confirm Completion** in the **Operation** column.
- vii. Click **OK**. Ensure that the connection status changes to **Normal**.

 **NOTE**

The time required may be longer if there are special events or holidays during the construction period.

Full-Service Connection

- **Scenario**

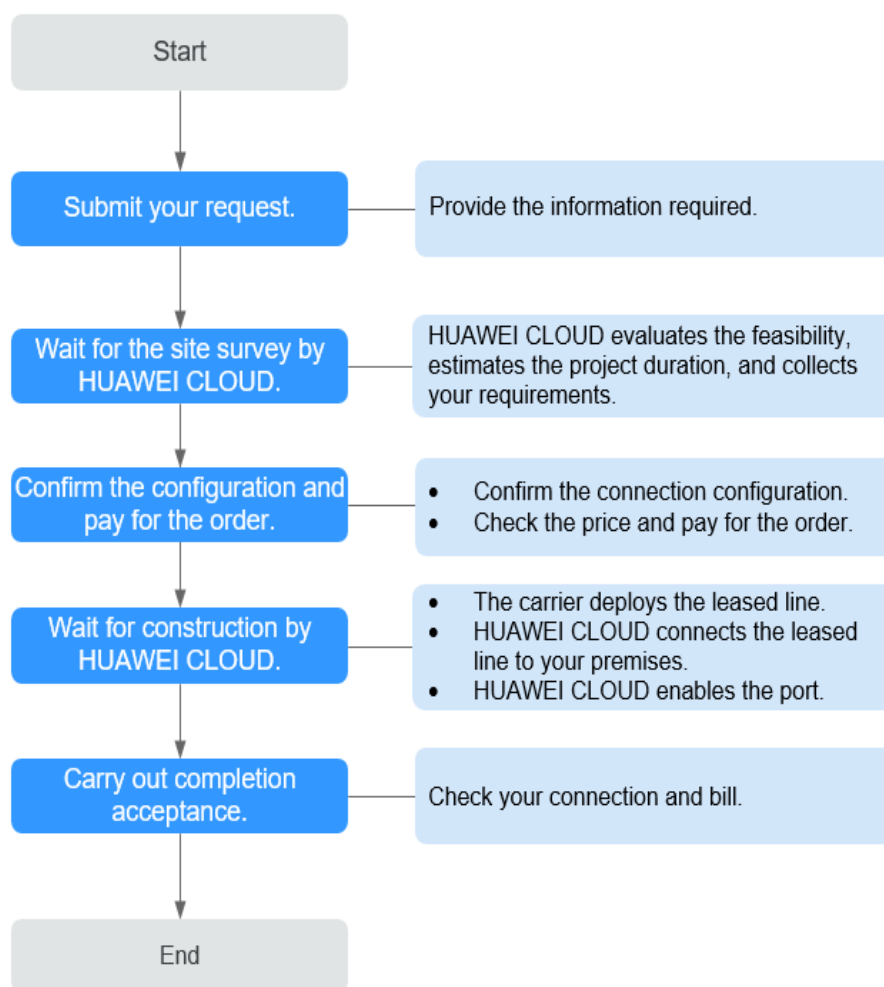
HUAWEI CLOUD completes all operations required for connecting your data center to the cloud, including integrating the network resources and ports.

Figure 3-3 shows the entire process.

 **NOTE**

Full-service connections are now available in the following regions: CN North-Beijing1, CN North-Beijing4, CN East-Shanghai1, CN East-Shanghai2, CN South-Guangzhou, CN South-Shenzhen, and CN Southwest-Guiyang1.

Figure 3-3 Full-service installation process



- **Procedure**

- a. Submit your request.
 - i. Navigate to the Direct Connect console after login and click **Create Connection**. Click **Full Service Installation** in the navigation bar.
 - ii. Provide information about your equipment room and select a HUAWEI CLOUD location. For details about the parameters, see [Table 3-2](#).

Table 3-2 Parameter description

Parameter	Description	Example Value
Equipment Room Address	Specifies the address of your equipment room. The address must be specific to the room and cabinet number, for example, Cabinet XX, XX Equipment Room, XX Building, No. XX, Huajing Road, Pudong District, Shanghai.	N/A
Available Carriers	Specifies the carriers that are allowed to enter your equipment room.	China Telecom
Port Type	Specifies the type of port on the device in your equipment room for connecting to the leased line.	GE single-mode optical port
Region	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.	CN Southwest-Guiyang1
Location	Specifies the Direct Connect location where your leased line can be connected to.	-
Port Type	Specifies the type of the port used by the connection. There are two types of ports: 1GE single-mode optical port and 10GE single-mode optical port.	1GE single-mode optical port
Connection Name	Specifies the name of your connection.	dc-123
Leased Line Bandwidth	Specifies the bandwidth of the connection in the unit of Mbit/s.	1,000 Mbit/s
Billing Mode	Specifies the billing model of the connection. Currently, only Yearly/Monthly is supported.	Yearly/ Monthly
Required Duration	Specifies how long the connection will be used.	1 year
Contact Person	Specifies the name of the person who is responsible for connecting your environment to the cloud.	Tom

Parameter	Description	Example Value
Phone Number	Specifies the phone number of the person who is responsible for connecting your environment to the cloud.	+086 13912345678 (Chinese mainland)
Email	Specifies the email address of the person who is responsible for connecting your environment to the cloud.	Tom@mail.com

- iii. Click **Submit**.
- b. Wait for HUAWEI CLOUD's site survey.
HUAWEI CLOUD evaluates your requirements and the carrier's resources and confirms whether your requirements can be met. If your requirements can be met, HUAWEI CLOUD will place an order to you.

 **NOTE**

Generally, the site survey takes three working days.

- c. Confirm and pay for the order.
 - i. On the **Connections** page, locate the target connection and click **Confirm Configuration** in the **Operation** column.
 - ii. Confirm the connection configuration and expenses, and then click **Next**.

 **NOTE**

You need to read and agree to the *Full-Service Installation Statement* before paying for the order.

- iii. On the purchase page, select a payment mode and click **Pay**.

 **NOTE**

If you select **Download Contract and Pay**, download a contract on the contract page and then request your financial department to process the payment. Discounts, if any, will automatically apply.

- d. Wait for HUAWEI CLOUD to complete the following work:
 - i. Contacts the carrier to deploy the leased line.
 - ii. Connects your on-premises data center to the cloud using the leased line.
 - iii. Contacts the carrier to complete in-building cabling.

 **NOTE**

This step is required when you choose a full-service connection with a dedicated port and need cabling for your site.

- iv. Enables the port.
- e. Confirm that you want to enable Direct Connect.

- i. On the **Connections** page, locate the target connection and click **Confirm Completion** in the **Operation** column.
- ii. Click **OK**. Confirm that your connection is available for use, and the billing starts.

4 Step 2: Create a Virtual Gateway

Scenarios

After creating a connection, you need to create a virtual gateway to associate it with the VPC to be accessed.

Procedure



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. Hover on  to display **Service List** and choose **Networking > Direct Connect**.
4. In the navigation pane on the left, choose **Direct Connect > Virtual Gateways**.
5. Click **Create Virtual Gateway**.
6. Configure the parameters based on [Table 4-1](#).

Table 4-1 Parameter description

Parameter	Description	Example Value
Name	Specifies the virtual gateway name. The name can contain 1 to 64 characters.	vgw-123
VPC	If you set Attachment to VPC , select a VPC that will be associated with the virtual gateway.	VPC-001

Parameter	Description	Example Value
Local Subnet	Specifies the CIDR blocks of the subnets in the VPC to be accessed using Direct Connect. You can add one or more CIDR blocks. Separate every entry with a comma (,) if there are multiple CIDR blocks.	192.168.0.0/16
Description	Provides supplementary information about the virtual gateway.	N/A



7. Click **OK**.
Ensure that the virtual gateway is in the **Normal** state.

5 Step 3: Create a Virtual Interface

Scenarios

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

Procedure

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. Hover on  to display **Service List** and choose **Networking > Direct Connect**.
4. In the navigation pane on the left, choose **Direct Connect > Virtual Interfaces**.
5. Click **Create Virtual Interface**.

NOTE

- Cross-account virtual interfaces are available in CN North-Beijing4, CN East-Shanghai1, and CN South-Guangzhou regions.
- Virtual interfaces that you created for other users take effect only after other users accept them.

Configure the parameters based on [Table 5-1](#).

Table 5-1 Parameters for creating a virtual interface for your own account

Parameter	Description	Example Value
Region	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.	CN North-Beijing4
Name	Specifies the virtual interface name. The name can contain 1 to 64 characters.	vif-123

Parameter	Description	Example Value
Connection	Specifies the connection you can use to connect your environment to HUAWEI CLOUD.	dc-123
Virtual Gateway	Specifies the virtual gateway to which the virtual interface connects.	vgw-123
VLAN	Specifies the ID of the VLAN in which the virtual interface works. You need to configure the VLAN if you create a connection through self-service. The VLAN of the virtual interface of the hosting private line uses the VLAN allocated by the carrier or partner for the hosting private line. You do not need to configure the VLAN.	30
Bandwidth	Specifies the bandwidth that can be used by the virtual interface in the unit of Mbit/s. The bandwidth cannot exceed that of the connection.	50
Local Gateway	Specifies the IP address for connecting to the cloud.	10.0.0.1/30
Remote Gateway	Specifies the IP address for connecting to your 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.	10.0.0.2/30
Remote Subnet	Specifies the subnets and masks of your network. If there are multiple subnets, use commas (,) to separate them.	192.168.51.0/24, 10.1.123.0/24
Routing Mode	Specifies the routing mode. Two options are available, static routing and BGP routing. If there are two connections or you want to have another connection in the future, select BGP routing.	BGP
BGP ASN	Specifies the autonomous system number (ASN) of the BGP peer. This parameter is required when BGP routing is selected.	12345

Parameter	Description	Example Value
BGP MD5 Authentication Key	Specifies the password used to authenticate the BGP peer using MD5. The value is case sensitive and cannot contain spaces. This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same.	12345678
Description	Provides supplementary information about the virtual interface.	N/A

If you want to create a virtual interface for other users, configure the parameters based on [Table 5-2](#).

Table 5-2 Parameters for creating a virtual interface for other users

Parameter	Description	Example Value
Virtual Interface Account	Specifies the account that owns the virtual interface. You create a virtual interface for another user so that this user can use your connection to access the VPC.	Another account
Region	Specifies the region where the connection resides. You can also change the region in the upper left corner of the console.	CN North-Beijing4
Name	Specifies the virtual interface name. The name can contain 1 to 64 characters.	vif-123
Connection	Specifies the connection you can use to connect your environment to HUAWEI CLOUD.	dc-123
Project ID	Specifies the ID of the project that the virtual gateway belongs to. On the management console, hover the cursor on the account name in the upper right corner and select My Credentials . On the My Credentials page, view the project ID.	-
ID	Specifies the ID of the virtual gateway. In the virtual gateway list, hover the cursor on the virtual gateway name and view the name and ID of the virtual gateway.	-

Parameter	Description	Example Value
VLAN	<p>Specifies the ID of the VLAN in which the virtual interface works.</p> <p>You need to configure the VLAN if you create a connection through self-service.</p> <p>The VLAN of the virtual interface of the hosting private line uses the VLAN allocated by the carrier or partner for the hosting private line. You do not need to configure the VLAN.</p>	30
Bandwidth	<p>Specifies the bandwidth that can be used by the virtual interface in the unit of Mbit/s. The bandwidth cannot exceed that of the connection.</p>	50
Local Gateway	<p>Specifies the IP address for connecting to the cloud.</p>	10.0.0.1/30
Remote Gateway	<p>Specifies the IP address for connecting to your network.</p> <p>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.</p>	10.0.0.2/30
Remote Subnet	<p>Specifies the subnets and masks of your network. If there are multiple subnets, use commas (,) to separate them.</p>	192.168.51.0/24, 10.1.123.0/24
Routing Mode	<p>Specifies the routing mode. Two options are available, static routing and BGP routing.</p> <p>If there are two connections or you want to have another connection in the future, select BGP routing.</p>	BGP
BGP ASN	<p>Specifies the ASN of the BGP peer.</p> <p>This parameter is required when BGP routing is selected.</p>	12345
BGP MD5 Authentication Key	<p>Specifies the password used to authenticate the BGP peer using MD5. The value is case sensitive and cannot contain spaces.</p> <p>This parameter is mandatory when BGP routing is selected, and the parameter values on both gateways must be the same.</p>	12345678
Description	<p>Provides supplementary information about the virtual interface.</p>	-

 **NOTE**

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

- 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.
- 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 gateway must be in the same CIDR block as the remote gateway, and this CIDR block cannot conflict with the local subnet configured on the virtual gateway or the remote subnet configured on the virtual interface.

6. Click **Create Now**.

Ensure that the virtual interface is in the **Normal** state.

7. Ping the IP address of a host in the VPC from your environment to check network connectivity.

6 Step 4: Configure Routes

After your on-premises network has been connected to HUAWEI CLOUD, you need to configure routes at your premises.

For details about how to configure static routes, see [Accessing a VPC Using a Static Routing Connection](#).

For details about how to configure BGP routes, see [Accessing a VPC Using a BGP Routing Connection](#).