

Direct Connect

FAQ

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1 Popular Questions

1.1 What Are the Network Requirements for Connections?

- Your on-premises network must use a single-mode fiber with a 1GE, 10GE, 40GE, or 100GE optical module to connect to the access device in the cloud. In addition, key parameters such as the LC, wavelength, and distance must be aligned with the location, for example, 1GE, LC, single-mode, 1310nm, 10 KM.
- Auto-negotiation for the port must be disabled. Port speed and full-duplex mode must be manually configured.
- 802.1Q VLAN encapsulation must be supported on the entire connection, including intermediate devices.
- Your device must support BGP and BGP MD5 authentication or static routing.
- (Optional) You can configure BFD on your network.
- The maximum transmission unit (MTU) supported at the physical layer cannot exceed 1,522 bytes (14-byte Ethernet header + 4-byte VLAN tag + 1,500-byte IP datagram + 4-byte frame check sequence). The recommended value is 1500.
- Private IP addresses are recommended both on and off the cloud, and the IP address ranges cannot overlap.

1.2 How Do I Select a Carrier When Purchasing a Connection?

1. Confirm which carriers are available at the Direct Connect location you select. Different locations may have different carriers available.
2. Select the one that best meets your requirements based on their price, network performance, and other features.

1.3 How Will I Be Billed for Direct Connect?

You can create a standard connection, which will give you exclusive access to the port, or request a hosted connection from a partner and share the port.

Billing Items

- **Standard connection**

The following figure shows the fees that you need to pay for a standard connection.

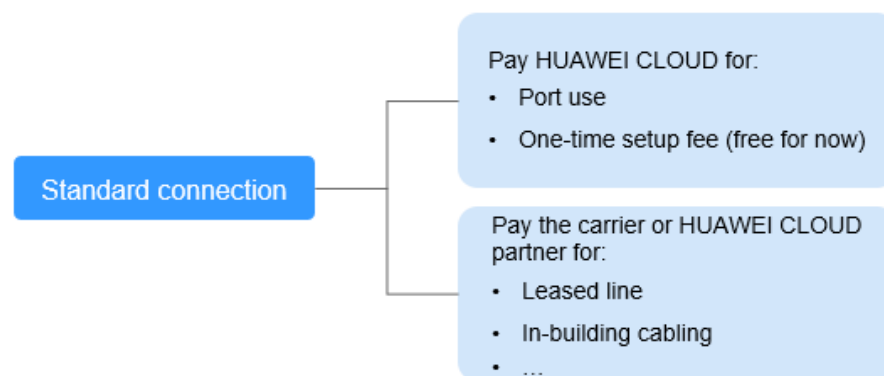


Table 1-1 Standard connection pricing

Payee	Billing Item	Description	Payment Method
Huawei Cloud	Port	The port is billed based on its specifications.	Prepaid (yearly/monthly subscription)
	One-time setup	Currently, you are not be billed for the one-time setup.	-
Carrier or Huawei Cloud partner	Leased line	To connect your on-premises data center to the cloud, you need to lease a line from the carrier.	N/A
	In-building cabling	If you lease a line for a carrier, you also need to pay for the cabling inside the carrier's equipment room.	N/A

- **Hosted connection**

If you buy a hosted connection from a Huawei Cloud partner, you share the port with other users and do not need to pay Huawei Cloud for one-time setup and the port.

The following figure shows the fees that you need to pay for a hosted connection.

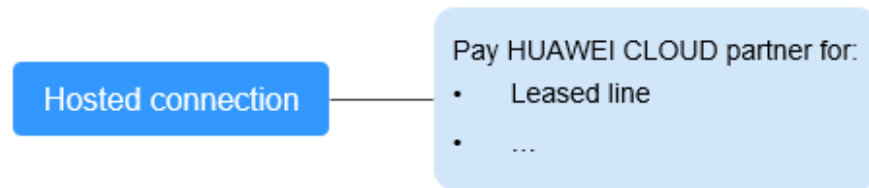


Table 1-2 Hosted connection billing details

Payee	Billing Item	Description	Payment Method
Huawei Cloud partner	Leased line	Your partner has established network connectivity with Huawei Cloud. You need to pay the partner for the leased line.	N/A

For details, see [Product Pricing Details](#).

Billing Mode

Only yearly/monthly subscription is available.

Changing Billing Mode

Currently, only **Yearly/Monthly** is supported, and it cannot be changed.

Renewal

For details, see [Renewal Management](#).

Expiration and Overdue Payment

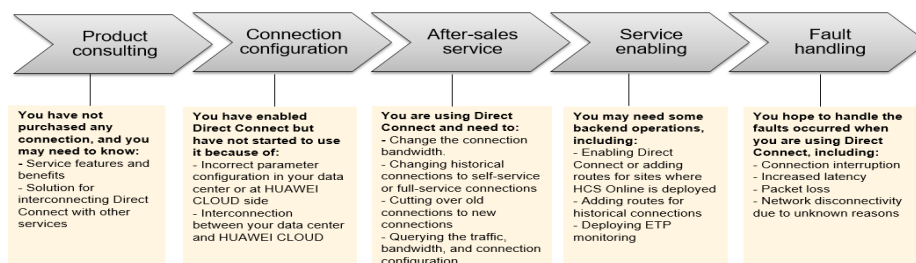
For details, see [Service Suspension and Resource Release](#) and [Payment and Repayment](#).

1.4 How Do I Submit a Service Ticket?

1. Log in to the management console.
2. In the upper right corner, choose **Service Tickets** > **Create Service Ticket**.
3. Choose **More Products**, and click **Direct Connect** under **Network**.
4. Select the service ticket type.

NOTE

When you submit a service ticket, selecting a ticket type can accelerate problem handling.

Figure 1-1 Ticket types

1.5 How Do I Test the Connectivity Between a VM and the Direct Connect Gateway After My Connection Is Created?

By default, a VM cannot ping the IP address range for network communication between the Direct Connect gateway and an on-premises data center. That is the subnet where the remote gateway and local gateway reside.

To test the connectivity, you need to add that IP address range to the remote subnet of the virtual interface.

1.6 What Do I Do If I Select the Wrong Carrier When Creating a Connection?

Your selection for the carrier does not affect the establishment of network connectivity.

If you want to change the carrier, you can unsubscribe from the created connection, create another one, and select the desired carrier.

2 Product Consultation

2.1 What Are the Network Requirements for Connections?

- Your on-premises network must use a single-mode fiber with a 1GE, 10GE, 40GE, or 100GE optical module to connect to the access device in the cloud. In addition, key parameters such as the LC, wavelength, and distance must be aligned with the location. Examples of optical module parameters: 1 GE, LC single-mode, 1310 nm, and 10 km
- Auto-negotiation for the port must be disabled. Port speed and full-duplex mode must be manually configured.
- 802.1Q VLAN encapsulation must be supported on the entire connection, including intermediate devices.
- Your device must support BGP and BGP MD5 authentication or static routing.
- (Optional) You can configure BFD on your network.
- The maximum transmission unit (MTU) supported at the physical layer cannot exceed 1,522 bytes (14-byte Ethernet header + 4-byte VLAN tag + 1,500-byte IP datagram + 4-byte frame check sequence). The recommended value is 1500.
- Private IP addresses are recommended both on and off the cloud, and the IP address ranges cannot overlap.

2.2 What Are 1GE and 10GE?

GE is short for Gigabit Ethernet.

1GE and 10GE indicate the maximum bandwidth supported by the ports. 1GE indicates 1 Gbit/s bandwidth, and 10GE indicates 10 Gbit/s bandwidth.

2.3 Is BGP Routing Supported in Direct Connect?

Yes. Direct Connect allows you to use BGP for routing.

You can refer to the following best practices to see where BGP routing is required:

- [Accessing a VPC over a Connection That Uses BGP Routing](#)
- [Accessing a VPC over Two Connections That Use BGP Routing](#)

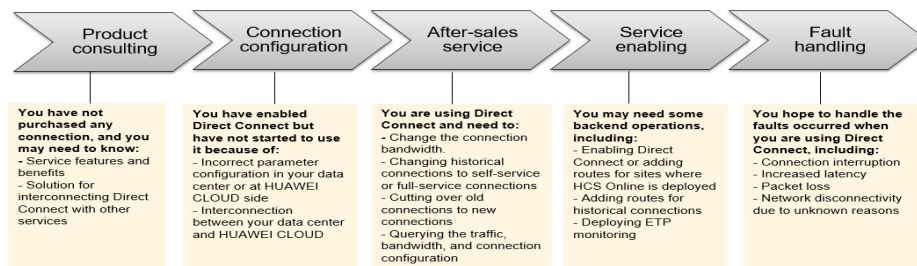
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1. Log in to the management console.
2. In the upper right corner, choose **Service Tickets** > **Create Service Ticket**.
3. Choose **More Products**, and click **Direct Connect** under **Network**.
4. Select the service ticket type.

NOTE

When you submit a service ticket, selecting a ticket type can accelerate problem handling.

Figure 2-1 Ticket types



2.5 What Are the Network Latency and Packet Loss Rate of a Connection?

Huawei Cloud provides the latency and packet loss rate from a VM to the Direct Connect gateway. To obtain the latency and packet loss rate from the Direct Connect gateway to your equipment room, contact the carrier from whom you leased the line.

The latency and packet loss rate provided by Huawei Cloud are subject to the actual monitoring.

2.6 Are the Uplink and Downlink Bandwidths of a Direct Connect Connection the Same?

Yes.

If you set the bandwidth to 100 Mbit/s, the uplink and downlink bandwidths are both 100 Mbit/s.

2.7 What Do I Do If I Select the Wrong Carrier When Creating a Connection?

Your selection for the carrier does not affect the establishment of network connectivity.

If you want to change the carrier, you can unsubscribe from the created connection, create another one, and select the desired carrier.

2.8 How Can I Change the VPC Associated with My Connection?

Delete the virtual gateway and virtual interface associated with the old VPC, create a new virtual gateway and a new virtual interface, and associate them with the new VPC.

2.9 What Are IP Addresses for Interconnection in Direct Connect?

IP addresses for interconnection refer to the IP addresses of the local and remote gateways. The local gateway is used for connecting to the cloud, and the remote gateway is used for connecting to your on-premises network.

⚠ CAUTION

The local gateway and remote gateway must be in the same IP address range. Generally, a subnet with a 30-bit mask is recommended. Plan an IP address range that will be used at both ends of the connection for network communications between your on-premises data center and the cloud.

2.10 How Do I Configure BFD for a Connection?

What Is BFD?

Bidirectional Forwarding Detection (BFD) is a network protocol designed to detect faults between two forwarding devices connected by a link.

Default BFD Configuration

Table 2-1 Default parameter settings

Parameter	Default Value
Global BFD	Disabled

Parameter	Default Value
Interval for sending BFD control packets	1000 ms
Interval for receiving BFD control packets	1000 ms
Local detection multiplier	3
WTR time	0
Delay before a BFD session becomes Up	0
Priority of BFD packets	7

BFD Support for Static Routing

Unlike dynamic routing protocols, static routes do not have a dedicated detection mechanism. If a fault occurs, static routes cannot detect the fault, and network administrators must delete the static route. With BFD, faults on static routes can be detected.

Each static route can be bound to a BFD session. When a BFD session bound to a static route detects a fault (for example, the link changes from Up to Down), BFD reports the fault to the routing management (RM) module, which then configures the route as inactive to indicate that the route is unavailable and will be deleted from the route table. When the BFD session bound to the static route is established or the link changes from Down to Up, BFD reports the event to the RM module, which then configures the static route as active to indicate that the route is available and will be added back to the route table.

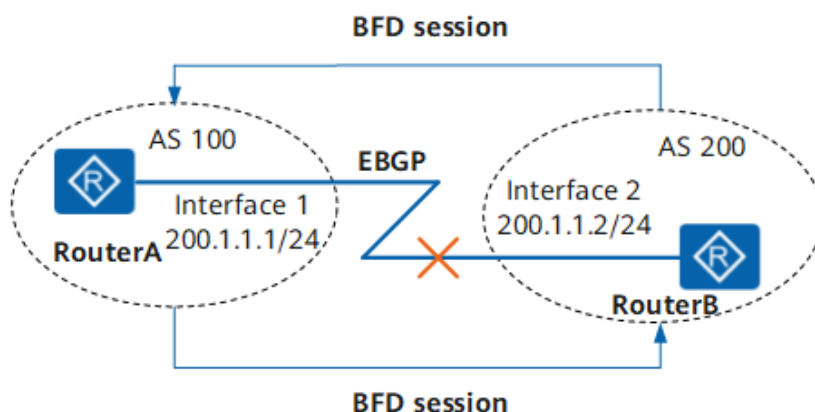
BFD Support for BGP Routing

BGP periodically sends Keepalive packets to its peers to detect faults. Detecting a fault using this mechanism takes more than 1 second. If traffic is transmitted at gigabit rates, a large number of packets will be lost. To avoid packet loss, BFD can be configured for BGP to rapidly detect faults on links between BGP peers and report the faults to BGP for fast BGP route convergence. [Table 2-2](#) lists the BGP convergence speeds.

Table 2-2 BGP convergence speeds

BFD Session Bound	Link Fault Detection Mechanism	Convergence Speed
Not bound	Keepalive packets	Within seconds
Bound	BFD session in the Down state	Within milliseconds

Figure 2-2 BFD support for BGP



RouterA belongs to AS 100 and RouterB belongs to AS 200. An External Border Gateway Protocol (EBGP) connection is established between RouterA and RouterB. BFD monitors the status of the EBGP connection. When the link between RouterA and RouterB becomes faulty, BFD can quickly detect the fault and notify BGP.

Verifying the BFD Configuration

You can run the following commands to view information about the configured BFD session.

- **display bfd interface** [*interface-type interface-number*]: Check the BFD-enabled interface.
- **display bfd session** {**all** | **static** | **discriminator** *discr-value* | **dynamic** | **peer-ip** { **default-ip** | *peer-ip* [**vpn-instance** *vpn-instance-name*] } | **static-auto** } [**verbose**]: View information about the BFD session.
- **display bfd statistics**: Check global BFD statistics.
- **display bfd statistics session** { **all** | **static** | **dynamic** | **discriminator** *discr-value* | **peer-ip** **default-ip** | **peer-ip** *peer-ip* [**vpn-instance** *vpn-name*] | **static-auto** }: Check BFD session statistics.

Troubleshooting

- **BFD Session Cannot Become Up**

Common causes

Common causes are as follows:

- The link detected by the BFD session is faulty. As a result, BFD packets cannot be exchanged.
- The BFD session frequently flaps.

Procedure

- Run **display current-configuration configuration bfd** to check whether the local and remote discriminators at both ends of the BFD session match.
 - If local and remote discriminators at both ends match, go to [2](#).

- If the local and remote discriminators at both ends do not match, run **discriminator** to configure the local and remote discriminators of the BFD session, and then run **display bfd session all** to check whether the BFD session is Up.
 - If the value of the **State** field is **Up**, the BFD session has been established.
 - If the value of the **State** field is not **Up**, go to [2](#).
- b. Run **display current-configuration configuration bfd** to check whether the BFD detection time is longer than the delay before the BFD session becomes Up.

Detection time = Received Detect Multi of the remote system x Max (Local RMRI/Received DMTI)

Detect Multi is the local detection multiplier, which is configured by running the **detect-multiplier** command. The **Required Min Rx Interval (RMRI)** is the minimum interval for receiving BFD packets, which is configured by running the **min-rx-interval** command. The **Desired Min Tx Interval (DMTI)** is the minimum interval for sending BFD packets, which is configured by running the **min-tx-interval** command.

The link delay can be obtained using the **ping or tracert** command.

If the BFD detection time is shorter than the delay before the BFD session becomes Up, run **detect-multiplier**, **min-rx-interval**, and **min-tx-interval** to increase the BFD detection time to be longer than the delay.

- **BFD Detection Result Affects Forwarding on an Interface**

Common causes

The BFD session is associated with the interface status.

Procedure

- a. Run **display interface interface-type interface-number** to check the status of the interface bound to the BFD session.
 - If the value of **Line protocol current state** is **UP (BFD status down)**, the interface status is affected by the BFD session status. When the BFD session detects a link fault, the interface enters the **BFD status down** state. Go to [2](#).
 - If the value of **Line protocol current state** is **Up** but the interface cannot forward packets, the forwarding module is working normally.
- b. Run **display bfd session all** to view the BFD session status.

If the BFD session is **Down**, go to [3](#).
- c. Run **display current-configuration configuration bfd-session** to check the BFD session configuration and check whether the **process-interface-status** command is configured.

If the **process-interface-status** command is configured, the interface enters the **DOWN (BFD status down)** state when the BFD session detects a link fault and enters the **Down** state. As a result, the interface cannot forward packets.

- **Modified BFD Parameters Do Not Take Effect**

Common causes

The configuration is not committed after BFD session parameters are modified.

 **NOTE**

Saving the results of each troubleshooting step is recommended. If your troubleshooting fails to correct the fault, you will have a record of your actions to provide Huawei technical support personnel.

Procedure

Run **display current-configuration configuration bfd-session** to check the BFD session configuration and check whether the **commit** command is configured.

If the **commit** command is configured, the modified BFD parameters are committed.

If the **commit** command is not used, the modified BFD parameters are not committed. Run **commit** to commit the configuration.

3 Leased Line Construction

3.1 How Long Does It Take to Establish Connectivity Between an On-premises Data Center and the Cloud?

Generally, this depends on how long it takes the carrier to deploy the leased line, which depends where your data center is physically located and on the location you select.

- If your data center and location are in different cities, it will take three to four months.
- If your data center and location are in the same city, it will take two to three months.

3.2 How Do I Select a Carrier When Purchasing a Connection?

1. Confirm which carriers are available at the Direct Connect location you select. Different locations may have different carriers available.
2. Select the one that best meets your requirements based on their price, network performance, and other features.

3.3 What Access Modes Does Direct Connect Support?

Currently, Huawei Cloud supports only 1GE and 10GE single-mode optical ports. Single fiber access is not supported.

4 Interconnection with the Cloud

4.1 Can I Access the Same VPC over Multiple Connections?

Yes.

To do so, you need to create multiple virtual interfaces, and select the same virtual gateway but different connections for each virtual interface.

4.2 How Do I Plan the CIDR Block of a VPC Accessed over a Direct Connect Connection?

- The CIDR block of the VPC, the CIDR block of the local and remote gateways, and the CIDR block used by the on-premises network cannot overlap or conflict with each other.
- To avoid conflicts with cloud service addresses, do not use 127.0.0.0/8, 169.254.0.0/16, 224.0.0.0/3 or 100.64.0.0/10 for your on-premises network.

4.3 What Must Be Considered When Direct Connect Is Used to Access the Cloud?

- Connection reliability: At least two connections are terminated at different locations to work as backup for each other.
- Bandwidth and port specifications: Select a 1GE port if the bandwidth of the leased line is 1 Gbit/s or lower. Select a 10GE, 40GE, or 100GE port if the bandwidth ranges from 1 Gbit/s to 100 Gbit/s.
- Port type: You can use an optical port or an electrical port. If you want to use an optical port, consider compatibility with optical modules at both ends, including the transmission distance and device brand.

4.4 Does Direct Connect Support NAT?

No.

During hybrid cloud networking, plan different private networks for the cloud and your premises. If network address conflicts occur, change NAT rules for the on-premises network.

4.5 Can the VLAN of the On-premises Network Be Used in the VPC Through Direct Connect?

No.

Currently, on-premises networks can only be interconnected with the cloud at Layer 3.

4.6 Can My Data Center Connect to Multiple VPCs Through One Connection?

Yes. You can use either of the following methods to access multiple VPCs, depending on the type of your connection:

- If you use a standard connection, you can create multiple virtual gateways and virtual interfaces to access different VPCs.
- If you have a hosted connection, you can only create one virtual interface and virtual gateway. If your data center needs to access other VPCs, you can set up VPC Peering connections to connect the VPC associated with your virtual gateway to the VPCs you want to access.

4.7 Can Direct Connect Be Used with Similar Services of Other Cloud Service Providers?

Yes.

Direct Connect can be used together with similar access services provided by other cloud service providers.

5 Networking and Scenarios

5.1 Can Multiple Connections Access the Same VPC?

Yes.

To do so, you need to create multiple virtual interfaces, and select the same virtual gateway but different connections for each virtual interface.

5.2 Can My Data Center Connect to Multiple VPCs Through One Connection?

Yes. You can use either of the following methods to access multiple VPCs, depending on the type of your connection:

- Standard connection: You can create multiple virtual gateways and virtual interfaces to associate with different VPCs.
- Hosted connection: You can create only one virtual interface and virtual gateway. If your data center needs to access other VPCs, you can set up VPC Peering connections to connect the VPC associated with your virtual gateway to the VPCs you want to access.

5.3 Can Direct Connect Be Used with Similar Services of Other Cloud Service Providers?

Yes.

Direct Connect can be used together with similar access services provided by other cloud service providers.

5.4 As a Partner, Can I Limit the Bandwidth Available on Each Hosted Connection?

Yes.

Hosted connections share the bandwidth of an operations connection, and the rate can be limited on your end or on the end user's device.

5.5 How Can I Change the VPC Associated with My Connection?

Delete the virtual gateway and virtual interface associated with the old VPC, create a new virtual gateway and a new virtual interface, and associate them with the new VPC.

6 Related Console Operations

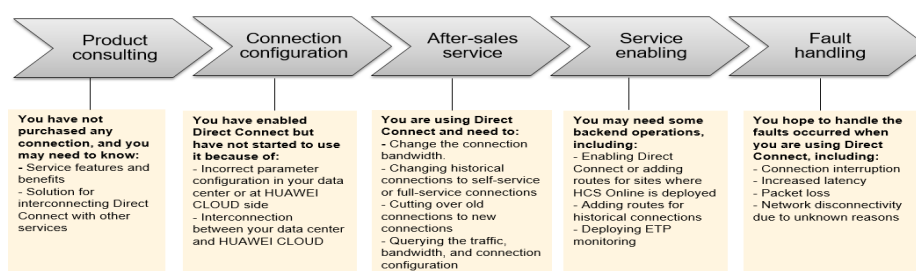
6.1 How Do I Submit a Service Ticket?

1. Log in to the management console.
2. In the upper right corner, choose **Service Tickets > Create Service Ticket**.
3. Choose **More Products**, and click **Direct Connect** under **Network**.
4. Select the service ticket type.

NOTE

When you submit a service ticket, selecting a ticket type can accelerate problem handling.

Figure 6-1 Ticket types



6.2 How Can I Unsubscribe from Direct Connect?



Scenarios

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

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. 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 > Connections**.
5. Locate the connection that you want to unsubscribe from and click **More > Unsubscribe** in the **Operation** column.
6. Locate the target connection and click **Unsubscribe from Resource** in the **Operation** column.
7. On the **Unsubscribe** page, select the reason for unsubscription, confirm the refund amount, and select **I understand a Handling fees will be charged for this unsubscription**.
8. Click **Confirm**.

6.3 What Parameters Can Be Modified After I Have Created a Virtual Interface?

You can modify the name, bandwidth, remote subnet, and description.

To modify the VLAN, local gateway, and remote gateway, you need to delete the virtual interface and create a new one.

6.4 Do I Need to Delete the Virtual Gateway and Virtual Interface Before Deleting a Hosted Connection?

Yes. You need to delete the virtual interface bound to the hosted connection before deleting the hosted connection.

You can keep the virtual gateway and associate it with other hosted connections later.

6.5 How Do I Change the Routing Mode of a Connection?

Delete the virtual interface associated with the connection and create another virtual interface. Select the routing mode you want when you create the virtual interface.

 CAUTION

Deleting the original virtual interface will interrupt network connectivity of the connection, which will be resumed after you associate the new virtual interface with the connection.

6.6 How Do I Delete a Hosted Connection?

To delete a hosted connection, contact the partner who created the hosted connection for you.

6.7 What Is the BGP ASN Used by Huawei Cloud?

The BGP ASN of Huawei Cloud ranges from 1 to 4294967295. Generally, the BGP ASN of Huawei Cloud is 64512 by default.

6.8 What Are IP Addresses for Interconnection in Direct Connect?

IP addresses for interconnection refer to the IP addresses of the local and remote gateways. The local gateway is used for connecting to the cloud, and the remote gateway is used for connecting to your on-premises network.

 CAUTION

The local gateway and remote gateway must be in the same IP address range. Generally, a subnet with a 30-bit mask is recommended. Plan an IP address range that will be used at both ends of the connection for network communications between your on-premises data center and the cloud.

7 Troubleshooting

7.1 What Are Common Troubleshooting Methods for Direct Connect?

Connectivity

If the network connectivity is abnormal after you have connected the leased line to the endpoint device, perform the following steps to locate the fault:

1. Verify that the network device is connected correctly, auto-negotiation is disabled for the optical port, and the port speed and full-duplex mode are configured manually.
2. Verify that optical signals can be normally transmitted and received.

Network

If the connection fails to work properly after you have created a virtual interface and used it to connect your environment to Huawei Cloud, perform the following steps to locate the fault:

1. Verify that the local gateway can be pinged from the remote gateway and that the VLAN of the intermediate device on the physical network is configured correctly.
2. Verify that IP addresses of the local and remote gateways are in the same CIDR block and configured on the VLAN sub-interfaces.
3. If static routing is used, verify that the next hop or outbound interface of the static route is correctly configured.
4. If BGP routing is used, verify that the BGP ASN, BGP MD5 authentication key, and BGP peer IP address are correctly configured. BGP ASNs on both gateways must be different.
5. If BGP routing is used, verify that the number of BGP routes advertised through the virtual interface does not exceed 100. If the number exceeds 100, excess BGP routes will not be received.
6. If BGP routing is used, verify that the rule for prohibiting TCP port 179 or large digital temporary TCP port connection is not configured.

Routing

If a static route has been delivered to a virtual interface or a BGP peer relationship has been established, perform the following steps to locate the fault:

1. Verify that the route from your gateway to your network is reachable.
2. Verify that the route of your network is correctly advertised and configured in the remote subnet of the virtual interface, and that BGP is used for routing in your network.
3. Verify that the VPC network segment is correctly configured on the virtual gateway.
4. Verify that your security group and network ACL rules allow inbound and outbound traffic.

7.2 How Do I Test the Network Connectivity Between a Location and the Cloud?

To test network connectivity between the location you select and the cloud, add the CIDR block where the local and remote gateways reside to the remote subnet you configure when creating the virtual interface, and then ping the IP address of the local gateway from a VM on the cloud.

If the test fails, check whether:

- The VM is in the VPC associated with the virtual gateway.
- The VM IP address is within the local subnet configured when you create the virtual gateway.
- The security group rules and network ACL rules of the VM allow traffic from the VM to the local gateway configured for the virtual interface.

8 Billing

8.1 How Will I Be Billed for Direct Connect?

You can create a standard connection, which will give you exclusive access to the port, or request a hosted connection from a partner and share the port.

Billing Items

- **Standard connection**

The following figure shows the fees that you need to pay for a standard connection.

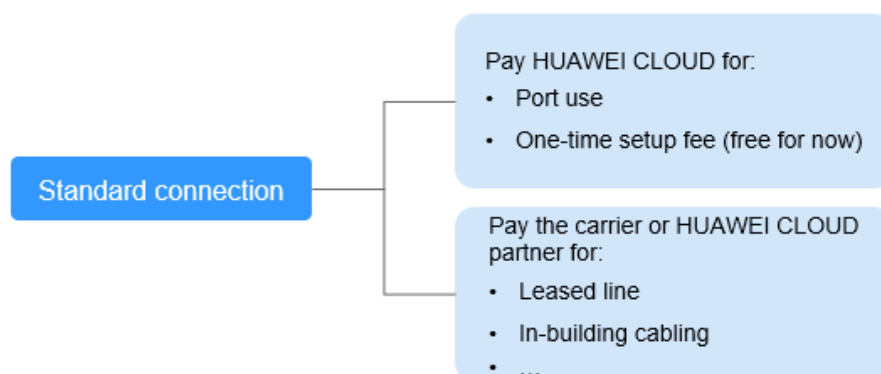


Table 8-1 Standard connection pricing

Payee	Billing Item	Description	Payment Method
Huawei Cloud	Port	The port is billed based on its specifications.	Prepaid (yearly/ monthly subscription)

Payee	Billing Item	Description	Payment Method
	One-time setup	Currently, you are not be billed for the one-time setup.	-
Carrier or Huawei Cloud partner	Leased line	To connect your on-premises data center to the cloud, you need to lease a line from the carrier.	N/A
	In-building cabling	If you lease a line for a carrier, you also need to pay for the cabling inside the carrier's equipment room.	N/A

• **Hosted connection**

If you buy a hosted connection from a Huawei Cloud partner, you share the port with other users and do not need to pay Huawei Cloud for one-time setup and the port.

The following figure shows the fees that you need to pay for a hosted connection.

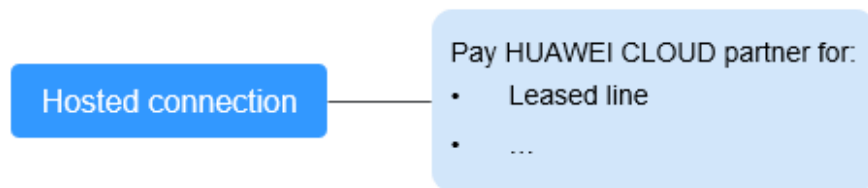


Table 8-2 Hosted connection billing details

Payee	Billing Item	Description	Payment Method
Huawei Cloud partner	Leased line	Your partner has established network connectivity with Huawei Cloud. You need to pay the partner for the leased line.	N/A

For details, see [Product Pricing Details](#).

Billing Mode

Only yearly/monthly subscription is available.

Changing Billing Mode

Currently, only **Yearly/Monthly** is supported, and it cannot be changed.

Renewal


For details, see [Renewal Management](#).

Expiration and Overdue Payment


For details, see [Service Suspension and Resource Release](#) and [Payment and Repayment](#).

8.2 Can I Renew My Connections?

Yes. You can perform the following operations to renew a connection:

1. Log in to the management console.
2. Hover on  to display **Service List** and choose **Networking > Direct Connect**.
3. In the navigation pane on the left, choose **Connections**.
4. Locate the connection that you want to renew and click **More > Renew** in the **Operation** column.
5. Set the duration that you want to renew the connection and click **Pay**. Then pay the order as prompted.

8.3 How Can I Unsubscribe from Direct Connect?

1. Log in to the management console.
2. Hover on  to display **Service List** and choose **Networking > Direct Connect**.
3. In the navigation pane on the left, choose **Direct Connect > Connections**.
4. Locate the connection that you want to unsubscribe from and click **More > Unsubscribe** in the **Operation** column.
5. Locate the target connection and click **Unsubscribe from Resource** in the **Operation** column.
6. On the **Unsubscribe** page, select the reason for unsubscription, confirm the refund amount, and select **I understand a Handling fees will be charged for this unsubscription**.
7. Click **Confirm**.

8.4 Is a Connection Still Available After Being Frozen?

After a connection expires, it is frozen and cannot be used. If you renew a frozen connection, it will become available again.

If you do not renew the connection within a certain amount of time, it will be deleted, and can no longer be renewed.

8.5 Can I Unsubscribe from a Connection in the Creating State?

No.

No. Currently, 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 creation is complete.

8.6 Can I Change the Port Type After I Have Created a Connection?

No. If you want to change the port type of a connection, you need to unsubscribe from the connection and create another connection.

9 Resource Monitoring

9.1 How Do I Monitor the Network Quality of a Direct Connect Connection?

The end-to-end network quality of Direct Connect connections is monitored using two plug-ins. Two key metrics are monitored for remote subnets: network latency and packet loss rate.

There are two plug-ins:

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

For details, see .

Table 9-1 Network quality metrics

Metric	Metric Name	Meaning	Value Range	Monitored Object	Monitoring Interval
latency	Latency	Network latency of data transmission over a connection Unit: ms	≥ 0 ms	Connections and historical connections	1 minute

Metric	Metric Name	Meaning	Value Range	Monitored Object	Monitoring Interval
packet_loss_rate	Packet Loss Rate	Rate of packets lost during data transmission over a connection Unit: Percent	0–100%	Connections and historical connections	1 minute

9.2 What Are Direct Connect Metrics?

Function

Use the management console or call APIs provided by Cloud Eye to query the metrics of the monitored objects and alarms generated for Direct Connect.

Namespace

SYS.DCAAS

Metrics

Table 9-2 Direct Connect metrics



Metric	Metric Name	Meaning	Value Range	Monitored Object	Monitoring Interval
network_incoming_bits_rate	Network Incoming Bandwidth	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_outgoing_bits_rate	Network Outgoing Bandwidth	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

Metric	Metric Name	Meaning	Value Range	Monitored Object	Monitoring Interval
network_incoming_bytes	Network Incoming 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_outgoing_bytes	Network Outgoing 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_incoming_packets_rate	Network Incoming 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_outgoing_packets_rate	Network Outgoing 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
network_incoming_packets	Network Incoming 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_outgoing_packets	Network Outgoing 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

Key	Value
direct_connect_id	Connection
history_direct_connect_id	Historical connection

9.3 How Can I View Direct Connect Metrics?

1. Log in to the management console.
2. Click  in the upper left corner of the console and select a region and project.
3. Hover on  to display **Service List** and choose **Management & Governance > Cloud Eye**.
4. In the navigation pane on the left, choose **Cloud Service Monitoring > Direct Connect**.
5. Click **View Metric** in the **Operation** column.
You can view data of the last one, three, 12, or 24 hours, or last 7 days.

10 Quota

10.1 What Are Resource Quotas of Direct Connect?

The following table lists the quotas of connections, virtual gateways, and virtual interfaces.

Resource	Default Quota
Number of connections that can be created by an account in each region	10
Number of virtual gateways that can be created by an account in each region	5
Number of virtual interfaces that can be created by an account in each region	50
Number of routes for BGP sessions on a virtual interface	100
Number of static routes on a virtual interface	50

NOTE

For details about how to view or increase the quota, see [Quotas](#).

10.2 How Many Hosted Connections Can a Partner Create on an Operations Connection?

A partner can create a maximum of 1000 hosted connections on a single operations connection. The total bandwidth of all hosted connections cannot exceed the bandwidth of the operations connection.