

# Alibaba Cloud

## Express Connect FAQ

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# Document conventions

Style	Description	Example
 <b>Danger</b>	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
 <b>Warning</b>	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 <b>Notice</b>	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
 <b>Note</b>	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click <b>Settings</b> > <b>Network</b> > <b>Set network type</b> .
<b>Bold</b>	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click <b>OK</b> .
Courier font	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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# 1.FAQ about physical connections

## 1.1. FAQ about physical connection construction

This topic describes FAQ about physical connection construction:

- 1. How long does it take to apply for and build an exclusive physical connection to connect to Alibaba Cloud?
- 2. In addition to applying for an exclusive physical connection, what other methods can be used to connect to Alibaba Cloud?
- 3. How long does it take to build a shared physical connection between the on-premises data center and Alibaba Cloud?
- 4. What is the difference between an exclusive physical connection and a shared physical connection?
- 5. Why must a site survey be performed by a service provider when I apply for a physical connection to Alibaba Cloud?
- 6. How can I choose the service provider when I purchase an exclusive physical connection?
- 7. If I purchase an exclusive physical connection from China Mobile, can the on-premises data center be connected to an access point of China Telecom?
- 8. Can a bare fiber be used to connect an on-premises data center to the access point of China Mobile?
- 9. Why are fees charged for indoor cables of Alibaba Cloud access points?
- 10. What are the costs of applying for an exclusive physical connection to Alibaba Cloud?
- 11. What are the costs of a shared physical connection to Alibaba Cloud?
- 12. Apart from a letter of authorization (LOA) issued by Alibaba Cloud, why do I need an LOA issued by the service provider for construction in the on-premises data center?
- 13. How can I choose a qualified physical connection in China?

### 1. How long does it take to apply for and build an exclusive physical connection to connect to Alibaba Cloud?

The period varies, depending on the location of the on-premises data center and the access point of Alibaba Cloud.

- The on-premises data center and the Alibaba Cloud access points are not located in the same building, and are connected through physical optical fibers. The construction period to connect the on-premises data center to the Alibaba Cloud service provider depends on the time consumed for laying cables. The overall period is three to six months.
- The on-premises data center and Alibaba Cloud access points are located in the same data center and connected by an indoor cable. The overall period is within two weeks.

For more information, see [Connect to Alibaba Cloud through a dedicated Express Connect circuit](#).

### 2. In addition to applying for an exclusive physical connection, what other methods can be used to connect to Alibaba Cloud?

You can use the following methods to connect to Alibaba Cloud:

- Apply for an exclusive physical connection from a service provider.
- Choose a shared physical connection from Alibaba Cloud partners.
- Alibaba Cloud managed products.

For more information about how to select a solution, see [Physical connection solutions](#).

### 3. How long does it take to build a shared physical connection between the on-premises data center and Alibaba Cloud?

If the access point of your service provider has been connected to the access point of Alibaba Cloud, you can consult the service provider and require the service provider to connect your on-premises data center to Alibaba Cloud through the access point of the service provider.

The service provider only deploys the leased line from the on-premises to the access point of the service provider. The overall construction period is within one month. For more information, see [Overview](#).

### 4. What is the difference between an exclusive physical connection and a shared physical connection?

The main differences between applying for an exclusive physical connection and a shared physical connection are the payment methods and construction cycles:

- You must settle payments to multiple related service providers for an exclusive physical connection and the construction period is 3 to 6 months.
- You only need to pay the required fees to the service provider for a shared physical connection. The construction period is within one month.

For more information, see [Physical connection solutions](#).

### 5. Why must a site survey be performed by a service provider when I apply for a physical connection to Alibaba Cloud?

The fees for a physical connection are determined by the physical distance between the on-premises data center and access points of Alibaba Cloud. The connection environments provided by the service providers are different. Therefore, the service provider must perform an end-to-end site survey before cable purchase.

After a site survey, the service provider offers you the information about the distance, lease fees, and construction cycle of the leased line. You will also see a description of each cable and its cost at the Alibaba access points and indoor cables of the on-premises data center. You can prepare the project planning and budget in advance based on the survey report.

### 6. How can I choose the service provider when I purchase an exclusive physical connection?

If you want to connect to Alibaba Cloud from the access point nearest to your location, you can find the access point on the buy page and choose the corresponding service provider. Different access points are supported by different service providers. For more information about the mappings between access points and the service providers, see [Preparations](#).

### 7. If I purchase an exclusive physical connection from China Mobile, can the on-premises data center be connected to an access point of China Telecom?

No. China Mobile, China Unicom, and China Telecom are mutually exclusive. They do not support an exclusive physical connection with other service providers.

## 8. Can a bare fiber be used to connect an on-premises data center to the access point of China Mobile?

China Mobile, China Unicom, and China Telecom do not support bare fiber to connect to on-premises data centers. Consult your service provider for details.

## 9. Why are fees charged for indoor cables of Alibaba Cloud access points?

The data centers of the access points in the China (Hangzhou)-Yuhang-A and China (Zhangjiakou) region are owned by Alibaba Cloud. The other data centers are leased from service providers or third-party data centers.

If you apply for an exclusive physical connection to connect your on-premises data center to Alibaba Cloud, you must purchase additional indoor cables from the data center provider.

## 10. What are the costs of applying for an exclusive physical connection to Alibaba Cloud?

An exclusive physical connection includes the following fees:

- Alibaba Cloud only charges you a one-time initial installation fee, resource occupation fee, and outbound traffic fee.
- You must pay the leased line rental fee to the carrier.
- You must pay the indoor cable fee of the data center where the Alibaba Cloud access point is located from the data center provider.
- You must pay the cost of the indoor cables of the on-premises data center to the data center provider.

For more information, see [计费说明](#).

## 11. What are the costs of a shared physical connection to Alibaba Cloud?

A shared physical connection includes the following fees:

- Alibaba Cloud does not charge you any initial installation fee and resource occupation fee, but charges you an outbound traffic fee.
- You must pay the leased line rental fee to the service provider.
- You must pay the cost of the indoor cables of the on-premises data center to the data center provider.

For more information, see [计费说明](#).

## 12. Apart from a letter of authorization (LOA) issued by Alibaba Cloud, why do I need an LOA issued by the service provider for construction in the on-premises data center?

The data centers of the access points in the China(Hangzhou)-Yuhang-A and China (Zhangjiakou) region are owned by Alibaba Cloud, while the other data centers are leased from service providers or third-party data centers. When you enter the facilities for construction, you must comply with the rules of both Alibaba and service providers.

Data centers of access points in Beijing and Shanghai belong to China Telecom and China Unicom. You must apply for an LOA for construction and provide the LOA to the on-site manager of the service provider at the on-premises data center for verification.

The letter of authorization must be stamped and certified by Alibaba Cloud. To apply for the seal of Alibaba Cloud, submit a ticket.

### 13. How can I choose a qualified physical connection in China?

According to stipulations of Chinese law, qualified leased line service providers must be granted both the A26 and A14 licenses issued by the Ministry of Industry and Information Technology of the People's Republic of China. Before you purchase a leased line, you can consult a service provider.

## 1.2. Express Connect circuits

This topic provides answers to some frequently asked questions about Express Connect circuits.

- Can I access virtual private clouds (VPCs) in different regions after my data center is connected to Alibaba Cloud through an Express Connect circuit?
- What types of ports does Alibaba Cloud support?
- What is the highest bandwidth supported by an Express Connect circuit?
- Do Express Connect circuits support dynamic routing protocols?
- Can I configure multiple Express Connect circuits to achieve disaster recovery?
- How do I achieve high availability?
- Can I use an Express Connect circuit to connect a data center to multiple VPCs?
- Can I extend a VLAN from a data center to a VPC through an Express Connect circuit?
- If an Express Connect circuit is connected to multiple VPCs, are these connections isolated from each other?
- Do Express Connect circuits support network address translation (NAT)?
- What is the correlation between zones and access points?
- Which access point do I need to choose for an Elastic Compute Service (ECS) instance that is deployed in Zone A?
- How much am I charged if I connect my data center to Alibaba Cloud by using an Express Connect circuit?
- How do I connect a data center to Alibaba Cloud through an Express Connect circuit?
- What are the requirements on IP addresses that are used to establish a connection over an Express Connect circuit?
- What is the VLAN ID of a VBR?
- What are the Alibaba Cloud-side and data center-side IP addresses specified on a VBR?
- How do I verify the network connectivity of an Express Connect circuit?
- How do I connect a data center to an internal endpoint of an Object Storage Service (OSS) bucket in a VPC?
- What do I do if my data center cannot access the Elastic Compute Service (ECS) instance on Alibaba



#### Cloud?

- [What do I do if my Express Connect circuit is down?](#)
- [What do I do if the bandwidth cannot reach the specified bandwidth limit?](#)
- [What do I do if the system returns an error when I add routes to or delete routes for a VBR?](#)
- [What do I do if the token error is returned when I add routes?](#)

### Can I access virtual private clouds (VPCs) in different regions after my data center is connected to Alibaba Cloud through an Express Connect circuit?

Yes, you can access VPCs in all regions after your data center is connected to Alibaba Cloud through an Express Connect circuit.

### What types of ports does Alibaba Cloud support?

The access devices of Alibaba Cloud support optical ports and copper Ethernet ports. By default, Alibaba Cloud provides LC optical transceiver modules with 1 Gbit/s and 10 Gbit/s optical ports. This type of optical transceiver module supports a maximum transmission distance of 10 km. If you want to use optical transceiver modules that support a longer transmission distance, you must purchase the modules from third-party service providers.

### What is the highest bandwidth supported by an Express Connect circuit?

The highest bandwidth limit of an Express Connect circuit for which you can apply in the console is 10 Gbit/s. You can request higher bandwidth.

### Do Express Connect circuits support dynamic routing protocols?

Yes, Express Connect circuits support Border Gateway Protocol (BGP).

### Can I configure multiple Express Connect circuits to achieve disaster recovery?

Yes, you can use at most four Express Connect circuits to configure equal-cost multi-path routing (ECMP).

### How do I achieve high availability?

To achieve high availability, you can use Express Connect circuits to establish active/active connections or active/standby connections between your data center and Alibaba Cloud. For more information, see the following topics:

- [Establish active/active connections between a data center and Alibaba Cloud](#)
- [Establish active/standby connections between a data center and Alibaba Cloud](#)

### Can I use an Express Connect circuit to connect a data center to multiple VPCs?

Yes, you can use an Express Connect circuit to connect a data center to multiple VPCs. You must use Cloud Enterprise Network (CEN) to connect the VPCs. This way, your data center and the VPC can communicate with each other through private connections.

## Can I extend a VLAN from a data center to a VPC through an Express Connect circuit?

No, Alibaba Cloud supports only interconnections with external networks over Layer 3.

## If an Express Connect circuit is connected to multiple VPCs, are these connections isolated from each other?

To isolate the connections, assign a VLAN ID to each connection. For more information, see [Create a VBR](#).

## Do Express Connect circuits support network address translation (NAT)?

No, Express Connect circuits do not support NAT. If your workloads require NAT, you must configure NAT in your data center.

## What is the correlation between zones and access points?

Both zones and access points are scoped to regions. You can access all of the zones in a region from an access point in the same region.

If the access point that you choose and the VPC that you want to connect are deployed in different regions, you must use CEN.

## Which access point do I need to choose for an Elastic Compute Service (ECS) instance that is deployed in Zone A?

You can choose a random access point in the region to which Zone A belongs.

By default, the network latency of connections among different zones within the same region is less than 5 milliseconds. If you want to minimize the network latency, you can choose the access point closest to Zone A. To query an access point location, .

## How much am I charged if I connect my data center to Alibaba Cloud by using an Express Connect circuit?

To connect a data center to Alibaba Cloud through an Express Connect circuit, you are charged by Alibaba Cloud and your connectivity provider. For more information, see [计费说明](#).

## How do I connect a data center to Alibaba Cloud through an Express Connect circuit?

1. Read the Express Connect user guide.
2. Choose an access point.
3. Apply for an Express Connect circuit and pay the initial installation fee in the console.
4. Apply for a Letter of Authorization (LOA).
5. Contact your connectivity provider to install the Express Connect circuit.
6. After your connectivity provider completes the installation, update the progress in the console and wait for Alibaba Cloud to install the pigtail.
7. Pay the resource usage fee.
8. Enable the Express Connect circuit.
9. Create a VBR.
10. Attach the VBR to a CEN instance, or create a peering connection.
11. Configure routes.
12. Run a ping test to verify the network connectivity between your data center and the VPC.

## What are the requirements on IP addresses that are used to establish a connection over an Express Connect circuit?

Before you specify IP addresses for a connection over an Express Connect circuit, make sure that the following requirements are met:

- The IP address of the gateway on Alibaba Cloud and the IP address of the gateway device in the data center do not conflict with each other. You can specify only private IP addresses. If public IP addresses are used in the data center, to configure IP address mapping.
- To prevent IP address conflicts, you cannot specify IP addresses from 100.64.0.0/10 for the gateway device in the data center.

## What is the VLAN ID of a VBR?

- If the VLAN ID of a VBR is set to 0, the switch port of the VBR is a Layer 3 router interface instead of a VLAN interface. If a Layer 3 router interface is used, each Express Connect circuit corresponds to a VBR. In this case, you can connect the Express Connect circuit only to VPCs that belong to your Alibaba Cloud account.
- If the VLAN ID is set to a value from 1 to 2999, the switch port of the VBR is a Layer 3 VLAN subinterface. If a Layer 3 VLAN subinterface is used, each VLAN ID corresponds to a VBR. In this case, you can connect the Express Connect circuit to VPCs that belong to different Alibaba Cloud accounts.

For example, a company has multiple subdivisions or subsidiaries. Each subdivision or subsidiary has a separate Alibaba Cloud account. Each Alibaba Cloud account owns a VPC. Before the company connects its subdivisions or subsidiaries to Alibaba Cloud through an Express Connect circuit, the company must assign a VLAN ID to each subdivision or subsidiary. When the company creates VBRs, the company must specify different VLAN IDs for the VBRs used by different subdivisions or subsidiaries.

## What are the Alibaba Cloud-side and data center-side IP addresses specified on a VBR?

The Alibaba Cloud-side IP address is the IP address of the VBR. The data center-side IP address is the IP address of the gateway device in the data center. The IP addresses allow your data center and the VPC to communicate with each other. When you create the VBR, make sure that the IP addresses that you specify belong to the same CIDR block.

## How do I verify the network connectivity of an Express Connect circuit?

After your connectivity provider installs the Express Connect circuit in the Alibaba Cloud data center, the following tasks must be performed:

- 1.
- 2.
3. On the **Physical Connections** page, click **Confirm Delivery**.

The status of the Express Connect circuit changes to **Waiting for Pigtail Installation**. Alibaba Cloud will complete the pigtail installation within one to two business days. Then, the status of the Express Connect circuit changes to **Pending for Payment**.

4. After you pay the resource usage fee, the status of the Express Connect circuit changes to **Enabled**.
5. Then, create a VBR and configure routes.
6. Run the `ping` command to verify the network connectivity between the data center and the VPC.

## How do I connect a data center to an internal endpoint of an Object Storage Service (OSS) bucket in a VPC?

Internal OSS endpoints belong to `100.64.0.0/10`, which is reserved by Alibaba Cloud. Therefore, you cannot add a `100.64.0.0/10` route to the VBR. You can divide `100.64.0.0/10` into smaller subnets. For example, `100.64.0.0/11` and `100.96.0.0/11`. Then, you can add the routes to the VBR and set the next hop to the VPC.

## What do I do if my data center cannot access the Elastic Compute Service (ECS) instance on Alibaba Cloud?

For more information about how to troubleshoot the issue, see [Troubleshooting](#).

## What do I do if my Express Connect circuit is down?

Ping the IP address of the VBR from the gateway device in the data center. If the gateway device in the data center fails to reach the specified IP address, report the issue to your connectivity provider. You can also contact Alibaba Cloud to check the access device connected to the Express Connect circuit.

If the access device in the Alibaba Cloud data center runs as expected but the issue persists, contact your connectivity provider to resolve the issue.

## What do I do if the bandwidth cannot reach the specified bandwidth limit?

If the bandwidth limit of your router interface is lower than 1 Gbit/s, use iPerf3 to measure the bandwidth. If the bandwidth does not exceed 10 Mbit/s, check whether the half duplex mode is enabled for one of the ports. You can request your connectivity provider to switch the negotiation mode to adaptive.

If the bandwidth limit of your router interface is higher than 1 Gbit/s, the bandwidth of each data stream is limited to 130 Mbit/s or 250 Mbit/s when network traffic is distributed across multiple resources.

## What do I do if the system returns an error when I add routes to or delete routes for a VBR?

The hardware of a VBR can process a limited number of requests at the same time. You can add or delete routes after the ongoing tasks are completed.

## What do I do if the `token error` is returned when I add routes?

The system returns the error when the cookie of your browser times out. Log out and try again later.

## 2. Differences between CEN and Express Connect

This topic describes the differences between Cloud Enterprise Network (CEN) and Express Connect. Both CEN and Express Connect can be used to connect an on-premises data center with a Virtual Private Cloud (VPC) instance to allow access to cloud resources. However, their network connection, route management, and bandwidth management are different.

The following table shows the differences between CEN and Express Connect.

Item	CEN	Express Connect
Network connection	<p>Network-wide interconnection</p> <p>All networks (VPCs and Virtual Border Routers) associated with a CEN instance are interconnected with each other. A secure, reliable, and high-speed intranet communication channel can be established between any two networks.</p>	<p>Single point interconnection</p> <p>Express Connect connections cannot be extended. Specifically, the VPCs or on-premises data centers that are connected through Express Connect can only communicate with the peer VPCs.</p>
Route management	<p>Dynamic learning</p> <p>Based on the Fullmesh link, CEN dynamically learns and distributes routes, which improves the convergence of routes, and the quality and security of network communication.</p>	<p>Manual configuration</p> <p>Express Connect requires end-to-end manual route configuration.</p>
Bandwidth management	<p>Cross-region shared bandwidth package</p> <p>CEN provides bandwidth packages which are sold by region to facilitate cross-region bandwidth adjustments. Bandwidth packages also help optimize resource allocation and save costs.</p>	<p>Point-to-point purchase</p> <p>The bandwidth of an Express Connect connection must be specified when you create the connection. You can adjust the bandwidth value after you create an Express Connect connection, but you cannot change the connected regions.</p>