Alibaba Cloud

Express Connect Physical Connection

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Document conventions

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

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1. What is a connection over an Express Connect circuit?

Express Connect provides a secure and convenient method to connect your data center to Alibaba Cloud. You can use an Express Connect circuit provided by an Internet service provider (ISP) to create a connection between your data center and an Alibaba Cloud access point. Connections over Express Connect circuits are not exposed to the Internet. Compared with Internet connections, connections over Express Connect circuits are safer, faster, more reliable, and have lower network latency.

You can create a point-to-point Ethernet connection or MPLS VPN connection. By default, connections over Express Connect circuits support the following ports, which have a transmission rate that ranges from 1 Mbit/s to 100 Gbit/s and support transmission distance of up to 10 km: 1000BASE-LX, 10GBASE-LR, 100BASE-T, RJ45, and LC ports.

Note If the port model that you use is obsolete, it may not support the advanced features of Express Connect. If you use a copper Ethernet port, contact your ISP to replace the copper Ethernet port with an optical port.

Access methods

Connections over Express Connect circuits include the following types:

- Dedicated connections over Express Connect circuits
 - To connect your data center to Alibaba Cloud, you can use a dedicated Express Connect circuit from an ISP. You can apply for a dedicated Express Connect circuit in the Express Connect console. For more information, see Create a dedicated connection over an Express Connect circuit.
- Shared connections over Express Connect circuits
 - The access points of network service provider (NSP) partners are already connected to the access points of Alibaba Cloud. You can contact an NSP partner to use a shared connection over an Express Connect circuit. In this case, the connection is shared by multiple tenants. For more information, see Overview.

2.Enable billing for outbound data transfer

Outbound data transfer refers to the data transfer from Alibaba Cloud to data centers. Starting July 1, 2021, you can enable billing for outbound data transfer.

Billing for outbound data transfer

Prerequisites

Before you can enable billing for outbound data transfer, your Alibaba Cloud account must pass real-name verification. For more information about real-name verification, see Real-name verification FAQ.

Procedure

- 1. Step 1: Enable billing for outbound data transfer
- 2. Step 2: Purchase an outbound data transfer plan
- 3. Step 3: Request a quota increase for VBRs

Billing

In addition to the billing of outbound data transfer, the following changes are made to the Express Connect service:

- You are no longer charged an initial installation fee for your Express Connect circuit, which is USD 1,500. This reduces the costs of connecting data centers to Alibaba Cloud.
- You can create more virtual border routers (VBRs) free of charge to meet the requirements of complex networking.
- Data transfer from your data center to Alibaba Cloud is not billed. You are charged only for data transfer from Alibaba Cloud to your data center. This reduces the cost of data transfer when you use an Express Connect circuit to connect to Alibaba Cloud.
- After you enable billing for outbound data transfer, you can use 50 TB of outbound data transfer free of charge each month until the end of December 31, 2022. Starting January 1, 2023, you are charged for all of the outbound data transfer incurred in your service based on the billing rules. For more information about outbound data transfer fees, see Outbound data transfer fees.

Outbound data transfer plans

If you require out bound dat a transfer plans larger than the sizes provided on the buy page, contact customer service.

• The following table describes how to purchase and use an outbound data transfer plan.

	ltem	Description
--	------	-------------

ltem	Description
Purchase rules	 After you purchase a data transfer plan, the data transfer plan immediately takes effect and automatically offsets fees for outbound data transfer in the specified regions. The validity period of an outbound data transfer plan is one year. The number of outbound data transfer plans that you can purchase is unlimited. If you purchased multiple outbound data transfer plans, the data transfer plan that expires the earliest is applied first. Note If the outbound data transfer plans are exhausted, you are charged for the overage based on the actual prices of outbound data transfer. The outbound data transfer plans that you purchase do not affect the 50 TB of free outbound data transfer provided by Alibaba Cloud.
Sizes of outbound data transfer plans and supported areas	 Areas that support outbound data transfer plans: Chinese mainland, Asia Pacific, Indonesia, Australia, India, Europe and Americas, and Middle East. Each area consists of one or more regions. For more information, visit the buy page. Outbound data transfer plans are available in the following sizes: 1 TB, 10

• For more information about the prices of outbound data transfer plans, see Outbound data transfer plans.

Step 1: Enable billing for outbound data transfer

- 1.
- 2.
- 3. In the Enable Outbound Data Transfer Billing section, click Enable Now.
- 4. On the page that appears, read and select Terms of Service. Then, click Activate.

Step 2: Purchase an outbound data transfer plan

An outbound data transfer plan takes effect only after you complete the payment.

- 1.
- 2.
- 3. In the Purchase Outbound Data Transfer Plan section, click Buy Now.
- 4. On the **Outbound Data Transfer Plan International Site** page, set the following parameters and click **Buy Now**.

Parameter

Parameter	Description
Quantity	Specify the number of outbound data transfer plans that you want to purchase.
Size	Specify the size of the data transfer plan. Valid values: 1 TB, 10 TB, and 100 TB.
Validity Period	The validity period of an outbound data transfer plan is 1 Year. After you complete the payment, the outbound data transfer plan immediately takes effect and automatically offsets fees for the outbound data transfer in the specified regions. After an outbound data transfer plan expires, the unused quota is cleared.
Available In	Specify the regions in which you want to use the outbound data transfer plan. Before you purchase an outbound data transfer plan, confirm the regions to which you want to apply the data transfer plan.

- 5. On the **Confirm Order** page, read and select Terms of Service and click **Pay**. After you complete the payment, you can view the outbound data transfer plan on the Manage Reserved Instances page.
 - You can view the basic information about the data transfer plan on the **Overview** tab.
 - You can view the usage details of the data transfer plan on the **Details** tab.

Step 3: Request a quota increase for VBRs

After you enable billing for outbound data transfer, you can create at most 10 VBRs for each Express Connect circuit free of charge within the current account. You can request a quota increase as needed.



Note For more information about the quota on VBRs, see Limits.

- 1.
- 2.
- 3. In the Increase VBR Quota for Current Account section, click Upgrade Now.
- 4. On the Request Quota Increase page, specify the requested value and the reason for the application and click OK.

Related operations

View monitoring data of data transfer

You can view the outbound data transfer of an Express Connect circuit in the console.

- 1.
- 2.
- 3. Find the Express Connect circuit that you want to manage and click the 🔼 icon in the **Monitor**

By default, the monitoring data within the last day is displayed. You can set the time granularity to **Daily** or **Hourly** and select a predefined time period or specify a custom time range.

• Predefined time periods:

- To query monitoring data by day, select 1 day, 7 days, 15 days, or 30 days.
- To query monitoring data by hour, select 1 hour, 6 hours, 12 hours, or 24 hours.
- Custom time period: If you set the time granularity to Hourly, you can specify a time period in the last 24 hours. If you set the time granularity to Daily, you can specify a time period in the last 30 days.

References

- OpenPhysicalConnectionService: enables billing for outbound data transfer.
- GetPhysicalConnectionServiceStatus: checks whether billing for outbound data transfer is enabled for the current account.

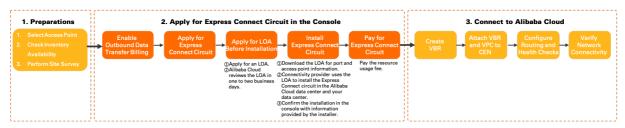
3.Dedicated physical connection

3.1. Connect to Alibaba Cloud through a dedicated Express Connect circuit

After you apply for a dedicated Express Connect circuit, the connectivity provider must complete tasks such as performing a site survey and cabling. It requires about one to three months for the provider to complete these tasks. We recommend that you make a detailed plan about how to connect your data center to Alibaba Cloud and estimate the expenses. This topic describes how to apply for a dedicated Express Connect circuit. This topic also describes the workflow of installing a dedicated Express Connect circuit and the status of the Express Connect circuit in different stages.

Connect to Alibaba Cloud through a dedicated Express Connect circuit

The following figure shows the workflow of connecting to Alibaba Cloud through a dedicated Express Connect circuit.



? Note

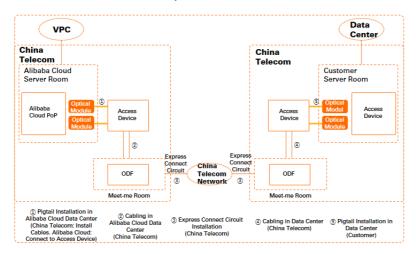
- A Letter of Authorization (LOA) is the authorization to connect to Alibaba Cloud. The connectivity provider must present the LOA before they can enter the Alibaba Cloud data center (access point location) and complete the installation.
- The amount of time that is required to review the LOA and install the Express Connect circuit may be extended due to public holidays and local laws.
- 1. Before you apply for a dedicated Express Connect circuit, you must select an access point, check the stock, and contact your connectivity provider to complete the pre-installation site survey. For more information, see Preparations.
- 2. Create a connection over an Express Connect circuit in the Express Connect console. For more information, see Create a dedicated connection over an Express Connect circuit.
 - i. Enable billing for out bound dat a transfer. For more information, see Enable billing for out bound dat a transfer.
 - ii. Apply for an Express Connect circuit, contact the provider to install the Express Connect circuit, and complete the payment. For more information, see Create a dedicated connection over an Express Connect circuit.
- 3. Connect your data center to Alibaba Cloud through the Express Connect circuit.
 - i. Create a virtual border router (VBR). For more information, see Create a VBR.

ii. Attach the VBR and virtual private cloud (VPC) to a Cloud Enterprise Network (CEN) instance, add routes to the VBR and configure health checks, and verify the network connectivity. For more information, see Connect to an ECS instance from a data center by using an Express Connect circuit

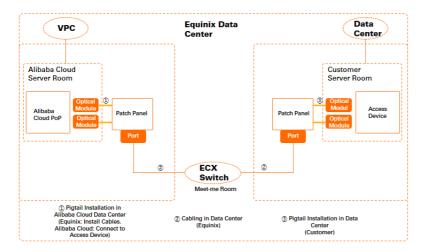
Workflow of installing an Express Connect circuit

The workflow of installing an Express Connect circuit may vary based on the network topology. The following figures show the workflows of installing Express Connect circuits in two commonly used network topologies. You can contact your connectivity provider for installation details.

• The following figure shows the installation workflow when your data center and the access point location are in different campuses.



• The following figure shows the installation workflow when your data center and the access point location are in the same campus.



Status of an Express Connect circuit in different stages

The workflow of connecting to Alibaba Cloud through a dedicated Express Connect circuit involves you, your connectivity provider, and Alibaba Cloud. The Express Connect console displays the status of an Express Connect circuit throughout different stages except **Under Construction** and provides relevant instructions. You can check the **Construction Procedure** of an Express Connect circuit on the Physical Connections page in the Express Connect console.



3.2. Preparations

Before you apply for an Express Connect circuit, you must choose an access point and contact a connectivity provider for a pre-installation site survey.

Step 1: Choose an access point

Access points are the points of presence (PoPs) of Alibaba Cloud and indicate the geographical locations where Express Connect circuits are connected to Alibaba Cloud. Two access devices are deployed at each access point. Each region contains one or more access points. You can connect your data center to a virtual private cloud (VPC) through an access point that meets your requirements. For more information about access points, see Locations of access points.

When you choose an access point, take note of factors such as the region, connectivity provider, and port.

• Region

We recommend that you select the access point nearest to your data center. The connectivity providers and bandwidth limits vary based on the access point.

Connectivity provider

We recommend that you choose a connectivity provider based on your business requirements. You can lease an Express Connect circuit from China Unicom, China Telecom, China Mobile, or other connectivity providers.



- When you install an Express Connect circuit in a data center, you must follow the rules of the colocation provider. For more information about colocation providers, see Locations of access points.
- You are not allowed to install Express Connect circuits in data centers of China Unicom, China Telecom, and China Mobile if the Express Connect circuits are leased from connectivity providers other than the preceding ones.
- If you choose China Unicom, China Telecom, or China Mobile as the connectivity provider, bare fiber is not supported. You must lease lines from these connectivity providers. For more information, contact your connectivity provider.

Port

You can use a copper Ethernet port or an optical port.

• The switches in the access points of Alibaba Cloud support RJ-45 copper Ethernet ports. The default port specification is 10 GE. 100BASE-T and 1000BASE-T copper Ethernet ports are also supported. The port rate depends on the port specification.

 Optical ports are known as bare optical fibers. Network carriers use optical cables of the transmission network to connect to Alibaba Cloud. The rate of an optical port depends on the negotiated speed of the optical transceiver module. The port rate can be 1 Gbit/s, 10 Gbit/s, 40 Gbit/s, or 100 Gbit/s.

? Note

- Different access points provide different port specifications. We recommend you check the port specifications available for purchase before you apply for an Express Connect circuit.
- By default, Alibaba Cloud provides optical transceiver modules with 1 Gbit/s and 10 Gbit/s ports. This type of optical transceiver module supports a maximum transmission distance of 10 km.

If you want to use optical transceiver modules with 40 Gbit/s and 100 Gbit/s ports or optical transceiver modules that support a maximum transmission distance of greater than 10 km, purchase them from a third party. If you purchase an optical transceiver module from a third party, you must contact your customer business manager from Alibaba Cloud before you install the Express Connect circuit in the Alibaba Cloud data center.

- To use optical ports, make sure that the connectivity provider uses optical fiber cables to connect to the access device of Alibaba Cloud.
- Alibaba Cloud does not host fiber optical transceivers for customers. Therefore, make sure that the connectivity provider uses the supported type of cable to connect to the access device of Alibaba Cloud.

Step 2: Check inventory availability

After you choose an access point, you can check whether the Express Connect circuit that you apply for is available for purchase on the payment page.

- 1. Go to the Express Connect-Port Initialization for Physical Connection page.
- 2. Set the parameters such as Access Point, Port Specification, and Port Type. Then, click **Buy Now**.
- 3. On the Confirm Order page, select Express Connect-Port Initialization for Physical Connection Agreement of Service and click Pay.
- 4. On the page that appears, check whether the Express Connect circuit that you apply for is available for purchase.
 - If the payment page appears after you click **Pay**, it indicates that the Express Connect circuit is in stock.
 - Notice Do not click Confirm Payment.
 - If a message that shows that the activation fails appears after you click Pay, it indicates that the Express Connect circuit that you apply for is out of stock. Select another access point and try again.

Step 3: Perform a site survey

After you verify that the specified access point is available and obtain the information about the location of the access point, contact your connectivity provider for details about connecting your data center to Alibaba Cloud. In addition, contact the connectivity provider to perform a site survey.

Notice

- If the access point is located in mainland China, you must acquire the permissions from Alibaba Cloud before your connectivity provider can perform a site survey in the data center of Alibaba Cloud.
- If the access point is located outside mainland China, you do not need permissions from Alibaba Cloud. The engineer in charge of the installation must be authorized by the data center where the access point is deployed to perform the site survey. The site survey is performed in the meet-me room (MMR) instead of the server room dedicated to Alibaba Cloud.
- 1. Contact your connectivity provider for details about installing the Express Connect circuit and connect the Express Connect circuit to the specified access point.
- 2. After you confirm the installation, to apply for the permissions to enter the Alibaba Cloud data center and perform a site survey.
 - You must provide the required information, such as the name, ID number, and contact information of the engineer to perform the site survey.
- 3. After the permissions are granted, Alibaba Cloud will assist the engineer to complete the site survey within two business days.
- 4. Contact your connectivity provider to perform the site survey and confirm the charges for the installation.

For more information about the billing of applying for an Express Connect circuit, see Billing.

3.3. Create a dedicated connection over an Express Connect circuit

This topic describes how to create a dedicated connection over an Express Connect circuit. To perform this task, you must apply for an Express Connect circuit in the console, contact your connectivity provider to install the Express Connect circuit, and then pay the relevant fees.

Prerequisites

- Billing for outbound data transfer is enabled. For more information, see Enable billing for outbound data transfer.
- An access point is selected. A pre-installation site survey is completed by your connectivity provider. For more information, see Preparations.
- In the following scenario, you must sign an additional authorization document that grants permissions on the installation and present it to the colocation provider: The colocation provider is China Telecom, China Unicom, or China Mobile. In addition, the Alibaba Cloud data center is deployed in the China (Beijing), China (Shanghai), China (Hangzhou), or China (Shenzhen) region.

Make sure that the seals of your company and Alibaba Cloud are affixed to the document. To apply for a seal from Alibaba Cloud, or contact customer service.

Step 1: Apply for an Express Connect circuit

- 1.
- 2.
- 3.
- 4. You can create a connection over an Express Connect circuit only after you enable billing for outbound data transfer. To enable billing for outbound data transfer, perform the following operations:
 - i. In the **Sign Agreement** dialog box, read and select the outbound data transfer billing agreement, and then click **Continue**.
 - ii. On the page that appears, read and select Terms of Service, and then click Activate Now.
 - iii. Go back to the homepage of the Express Connect console, and then open the Express Connect circuit buy page.
- 5. Enter the required information, click **Buy Now**, and then complete the payment.

Note The Connection Status column displays the actual status of an Express Connect circuit only after the installation of the Express Connect circuit and the payment are completed. Otherwise, the Connection Status column displays Down.

Parameter	Description
Region	Select the region where you want to create a connection over an Express Connect circuit. Select the region where the virtual private cloud (VPC) that you want to connect is deployed. If you want to connect to a VPC in a different region, you must use Cloud Enterprise Network (CEN) and pay for the inter-region connection.
Carriers	Select a connectivity provider. The access points that you can choose vary based on the connectivity provider. Note If you choose China Unicom, China Telecom, or China Mobile as the connectivity provider, you can lease lines only from the selected connectivity provider. You are not allowed to lease lines from other connectivity providers. If you choose China Unicom, China Telecom, or China Mobile as the connectivity provider, bare fiber is not supported. You must lease lines from these connectivity providers.
Access Point	Select an access point that is closest to your data center. Access points are Alibaba Cloud data centers located in different regions and support different ports. Each region contains one or more access points. For more information, see Locations of access points.

Parameter	Description
Understand Billing Rules	Read the billing rules and click Yes . For more information about the billing, see Billing.
	You are charged a resource usage fee based on the port specification. We recommend that you select a port specification based on your business requirements. To upgrade the maximum bandwidth of an Express Connect circuit from 500 Mbit/s to 2 Gbit/s, contact your connectivity provider. Then, contact the sales manager from Alibaba Cloud to replace the optical transceiver module.
Port Specification	 To apply for an Express Connect circuit whose maximum bandwidth is no greater than 1 Gbit/s, select 1G and below. To apply for an Express Connect circuit whose maximum bandwidth is greater than 1 Gbit/s, select 10G.
	? Note If you want to purchase 40 Gbit/s and 100 Gbit/s ports, .

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Parameter	Description
	 You can use a copper Ethernet port or an optical port. The switches in the access points of Alibaba Cloud support RJ-45 copper Ethernet ports. The default port specification is 10 GE. 100BASE-T and 1000BASE-T copper Ethernet ports are also supported. The port rate depends on the port specification. Optical ports are known as bare optical fibers. Network carriers use optical cables of the transmission network to connect to Alibaba Cloud. The rate of an optical port depends on the negotiated speed of the optical transceiver module. The port rate can be 1 Gbit/s, 10 Gbit/s, 40 Gbit/s, or 100 Gbit/s.
Port Type	 Different access points provide different port specifications. We recommend you check the port specifications available for purchase before you apply for an Express Connect circuit. By default, Alibaba Cloud provides optical transceiver modules with 1 Gbit/s and 10 Gbit/s ports. This type of optical transceiver module supports a maximum transmission distance of 10 km. If you want to use optical transceiver modules with 40 Gbit/s and 100 Gbit/s ports or optical transceiver modules that support a maximum transmission distance of greater than 10 km, purchase them from a third party. If you purchase an optical transceiver module from a third party, you must contact your customer business manager from Alibaba Cloud before you install the Express Connect circuit in the Alibaba Cloud data center. To use optical ports, make sure that the connectivity provider uses optical fiber cables to connect to the access device of Alibaba Cloud. Alibaba Cloud does not host fiber optical transceivers for customers. Therefore, make sure that the connectivity provider uses the supported type of cable to connect to the access device of Alibaba Cloud.
Redundant Connection ID	 Specify a redundant Express Connect circuit in the same region to configure equal-cost multi-path (ECMP) routing. If the Express Connect circuits are connected to different access points, you do not need to specify the redundant Express Connect circuit. If the Express Connect circuits are connected to the same access point, you must specify one of them as the redundant Express Connect circuit. The Express Connect circuits connected to the same access point are allocated to different access devices.

Step 2: Apply for an LOA

1.

2.

- 3. On the **Physical Connections** page, find the Express Connect circuit that you want to manage and click **Apply for LOA** in the **Actions** column.
- 4. In the **Apply for LOA** panel, enter the information about the Express Connect circuit installation and the engineer in charge of the installation. Then, click **OK**.

Note To obtain information about the access point location and ports, .

Parameter	Description							
Company Name	For a business account, enter the company name specified when you create the Alibaba Cloud account. For a personal account, enter the name of the account owner.							
Construction Company That Enters Data Centers of Alibaba Cloud	Enter the name of the connectivity provider that is in charge of installing the Express Connect circuit. In most cases, the Express Connect circuit provider or colocation provider is responsible for the installation.							
Leased Line Type	Specify the type of Express Connect circuit. Valid values: MSTP MPLSVPN Fiber Connection Others							
Construction Schedule	Specify the time to install the Express Connect circuit.							
On-premises Data Center Location	Specify the location of your data center.							
	Specify the maximum bandwidth of your Express Connect circuit.							
Leased Line Bandwidth	Note The maximum bandwidth that you enter does not affect how your Express Connect circuit is billed. In addition, this value does not limit the actual bandwidth when you use the Express Connect circuit.							
Add Field Engineer	Click Add Field Engineer to add information about the engineers that need to enter the Alibaba Cloud data center. You can add more than one field engineer.							
Add Field Eligilieel	Notice The field engineer information is required.							

After you apply for a Letter of Authorization (LOA), the **Status** of the Express Connect circuit changes to **In Application**. Alibaba Cloud reviews your application within two business days. After your application is approved, the **Status** of the Express Connect circuit changes to **Approved LOA**. Then, you can download the LOA file from the console.

Note If the access point is located outside the Chinese mainland, Alibaba Cloud reviews your application within three business days.

Step 3: Contact the connectivity provider to install the Express Connect circuit

1.

2.

- 3. On the **Physical Connections** page, find the Express Connect circuit that you want to manage and click **View LOA** in the **Actions** column.
- 4. On the View LOA page, click Download to download the LOA file.
- 5. The installation company must follow the instructions in the LOA file and connect the Express Connect circuit to the access device in the Alibaba Cloud data center.

? Note

- The LOA must be presented to an Alibaba Cloud engineer on the installation site.
- After the connectivity provider completes the installation, you can request a survey report from the connectivity provider to ensure that the Express Connect circuit functions as expected.
- If the access point is deployed in the Chinese mainland, engineers from Alibaba Cloud
 will assist the installation company to install the Express Connect circuit. After you click
 Confirm Delivery in the console, engineers will complete the installation by installing
 the fiber pigtail.
- If the access point is deployed outside the Chinese mainland, the installation company independently completes the installation. The access device that is connected to the Express Connect circuit can be an optical distribution frame (ODF) or patch panel. After you click Confirm Delivery in the console, engineers will complete the installation by installing the fiber pigtail.
- If you need to enter the Alibaba Cloud data center after the installation is completed, contact the sales manager from Alibaba Cloud to apply for the required permissions.
- 6. After the installation is completed, contact your connectivity provider for information about the ID of the Express Connect circuit, or information about the cable or port on the patch panel.
- 7. On the **Physical Connections** page, click **Confirm Delivery**. On the **Confirm Delivery** page, enter the Express Connect circuit information and click **OK**.

Then, the **Status** of the Express Connect circuit changes to **Waiting for Pigtail Installation**. The engineer from Alibaba Cloud installs the fiber pigtail within two business days. After the fiber pigtail is installed, the **Status** of the Express Connect circuit changes to **Pending for Payment**.

Note If the access point is deployed outside the Chinese mainland, Alibaba Cloud will install the fiber pigtail within three business days.

Step 4: Pay the resource usage fee

1.

2.

- 3. On the **Physical Connections** page, find the Express Connect circuit that you want to manage and click **Pay Resource Occupation Fees** in the **Actions** column.
- 4. Select a subscription duration and a renewal method, click **Buy Now**, and then complete the payment.
 - After you complete the payment, the **Status** of the Express Connect circuit changes to **Enabled**.

What to do next

After you create the connection, you must create a virtual border router (VBR), attach the VBR and the VPC to CEN, and then configure routing and health checks. Then, your data center can communicate with the VPC. For more information, see Connect to an ECS instance from a data center by using an Express Connect circuit.

Related operations

Modify an Express Connect circuit

- 1.
- 2.
- 3.
- 4. In the Basic Information section, click Edit.
- 5. In the Edit Physical Connection Interface panel, you can modify the name, maximum bandwidth, and data center location, and then click OK.

Upgrade an Express Connect circuit

After you upgrade an Express Connect circuit, the related data is migrated and modified. For example, the VBR that is associated with the original Express Connect circuit is deleted. This causes temporary service interruptions. Therefore, back up the data before you upgrade an Express Connect circuit.

- 1. To apply for another Express Connect circuit that supports larger bandwidth, perform the operations in Step 1: Apply for an Express Connect circuit.
- 2. To migrate the existing configurations and connection to the newly applied Express Connect circuit..
- 3. Create a VBR for the new Express Connect circuit, attach the VBR and VPC to a CEN instance, and configure routing and health checks.

References

- OpenPhysicalConnectionService: enables billing for outbound data transfer.
- CreatePhysicalConnection: creates a connection over an Express Connect circuit.
- ApplyPhysicalConnectionLOA: applies for an LOA.
- DescribePhysicalConnectionLOA: queries information about the LOA of an Express Connect circuit.
- CompletePhysicalConnectionLOA: confirms that the installation of an Express Connect circuit is completed.
- CreatePhysicalConnectionOccupancyOrder: creates an order for resource usage.
- ConfirmPhysicalConnection: accepts an Express Connect circuit. Then, the status of the Express Connect circuit changes to Confirmed.
- EnablePhysicalConnection: enables an Express Connect circuit that is in the Confirmed state. Then,

the status changes to **Enabled**.

- DescribePhysicalConnections: queries Express Connect circuits in a specified region.
- ModifyPhysicalConnectionAttribute: modifies the configurations of an Express Connect circuit.
- CancelPhysicalConnection: cancels the application for an Express Connect circuit before it is enabled.

4. Hosted connections over Express Connect circuits

4.1. Overview

Some Express Connect partners have already connected their networks to the access points of Alibaba Cloud. You can choose these Express Connect partners if your data center is located outside the access point locations of Alibaba Cloud or your workloads do not demand high bandwidth. The Express Connect partner will create a hosted connection over the pre-installed Express Connect circuit from your data center to a virtual private cloud (VPC) on Alibaba Cloud.

Background information

- is shared by multiple Express Connect partnertenants
- Shared Express Connect circuits provided by Express Connect partners are already connected to the access points of Alibaba Cloud. You need only to connect your data center to the access point of an Express Connect partner. Therefore, shared Express Connect circuits are best suited for users that have time efficiency demand.
 - In most cases, when you use a shared Express Connect circuit to connect to Alibaba Cloud, the installation can be completed within one month while installing a dedicated Express Connect circuit is more time-consuming.
- Alibaba Cloud offers shared ports. Express Connect partners can create shared ports instead of virtual border routers (VBRs) for tenants to manage their hosted connections. Shared ports belong to tenants.

Changes brought by shared ports:

- Express Connect partners are no longer charged initial installation fees, VBR fees, or resource usage fees
- Tenants are charged resource usage fees and outbound data transfer fees.

For more information about the billing of shared Express Connect circuits, see Billing of hosted connections over Express Connect circuits.

- After an Express Connect partner creates a shared port for a tenant, the tenant must accept the shared port. Then, the tenant can create a VBR for the shared port. Each shared port can be associated only with one VBR.
- Express Connect partners isolate resources based on the VLAN IDs of resources. Therefore, each hosted connection is assigned a VLAN ID. After you create a shared port for a tenant, you must notify the tenant to accept the shared port. Then, the tenant can create a VBR that uses the specified VLAN ID for the shared port. The tenant is not allowed to change the VLAN ID of the VBR.

Notice Before you use a shared Express Connect circuit to connect to Alibaba Cloud, you must contact the Express Connect partner to negotiate a contract. The Express Connect partner bears responsibilities for any issues that are not covered by the terms of Alibaba Cloud network service level agreement (SLA).

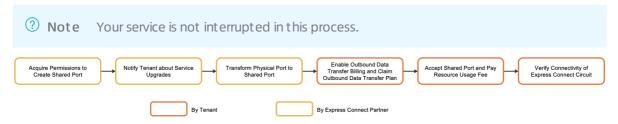
Connect to Alibaba Cloud through a shared Express Connect circuit

The following figure shows the workflow of connecting to Alibaba Cloud through a shared Express Connect circuit.

• If this is the first time you use a shared Express Connect circuit, you and the Express Connect partner must complete the tasks in the following figure to establish a connection between your data center and Alibaba Cloud.



• If your data center is already connected to Alibaba Cloud through a shared Express Connect circuit, the Express Connect partner must create a shared port for your existing connection and you must accept the shared port. The following figure shows the workflow.



Express Connect partners

The following table describes the Express Connect partners of Alibaba Cloud. You can choose an Express Connect partner to set up a hybrid cloud environment between your data center and Alibaba Cloud.

? Note In the following table, a check mark (\checkmark) indicates that the Express Connect partner is in the specified location and a hyphen (-) indicates that the Express Connect partner is not in the specified location.

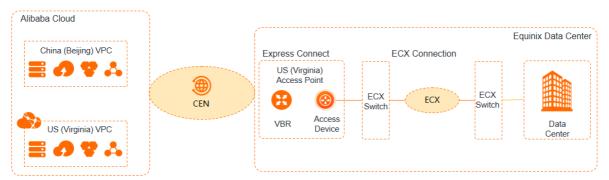
Express Connect partner	Chin a (Hon g Kon g)	Tok yo	Sing apor e	Aust ralia	Fran kfur t	UK	Virgi nia	San Jose	Ash burn	Indo nesi a	India
Interxion	-	-	-	-	V	_	-	-	-	-	-
BT	-	-	V	-	V	-	-	-	-	-	-
PCCW Global	V	V	V	V	V	-	-	1	V	-	-
Indonet	-	-	-	-	-	-	-	-	-	1	-
TATA	V	-	V	-	-	-	-	-	-	-	J
SingTel	-	-	V	-	-	-	-	-	-	-	-
NextDC	-	-	-	1	-	-	-	-	-	-	-

Express Connect partner	Chin a (Hon g Kon g)	Tok yo	Sing apor e	Aust ralia	Fran kfur t	UK	Virgi nia	San Jose	Ash burn	Indo nesi a	India
OBS	J	-	-	-	√	-	-	-	-	-	-
RETN	√	-	-	-	-	-	-	-	-	-	-
Telin	-	-	V	-	-	-	-	-	-	1	-
Colt	J	V	J	-	-	-	-	-	-	-	-
Equinix	V	V	V	1	1	-	-	1	V	-	-
Megaport	V	-	V	1	√	-	-	√	1	-	-
Epsilon	V	-	V	-	-	-	-	√	1	1	-
Reliance Communicati ons (RCOM) (the parent company of GCX)	-	-	V	-	-	-	-	-	-	-	-
Intercloud SAS	-	-	V	-	1	-	-	-	-	-	-
Vodafone	-	-	-	-	V	-	-	-	-	-	-
DE-CIX	-	-	-	-	1	-	-	-	-	-	-
Verizon	V	-	V	-	-	-	-	-	-	-	-
HGC	V	-	V	-	V	-	-	-	-	-	-
AT&T	-	-	-	-	-	-	-	1	1	-	-
GTT	-	-	V	-	-	-	-	-	-	-	-
China Unicom (Hong Kong)	1	1	1	J	1	-	-	-	-	-	-
China Unicom (Europe)	-	-	-	-	1	-	-	-	-	-	-
China T elecom Global	V	-	-	-	J	-	-	-	-	-	-
euNetworks	-	-	-	-	V	-	-	-	-	-	-

Express Connect partner	Chin a (Hon g Kon g)	Tok yo	Sing apor e	Aust ralia	Fran kfur t	UK	Virgi nia	San Jose	Ash burn	Indo nesi a	India
E-Shelter	-	-	-	-	√	-	-	-	-	-	-
CHIEF T elecom	1	-	-	-	-	-	-	-	-	-	-
5G Networks	-	-	-	1	-	-	-	-	-	-	-
HK Boardband	1	-	-	-	-	-	-	-	-	-	-
Avelacom	1	-	-	-	-	-	-	-	-	-	-
SBC-RouterX	-	1	-	-	-	-	-	-	-	-	-
SBKK	-	1	-	-	-	-	-	-	-	-	-
China Mobile International (CMI)	V	V	J	-	V	V	V	-	-	J	-

Example

Your data center is located in Equinix DC11 in Virginia. Your colocation provider is Equinix. You want to use Equinix Cloud Exchange (ECX) to connect your data center to the access point of Alibaba Cloud in the US (Virginia) region. In addition, you want to use a cloud service to connect to resources such as Elastic Compute Service (ECS), ApsaraDB RDS, Object Storage Service (OSS), and Server Load Balancer (SLB) instances in the China (Beijing) region.



? Note The maximum bandwidth of cross connections varies by Express Connect partner. For more information, contact the Express Connect partner.

- Contact Equinix to lease a shared Express Connect circuit. Contact Equinix to perform a preinstallation survey. Confirm the resources that are required and the fees that are charged for connecting your data center to the ECX platform.
- 2. Wait for Equinix to connect your data center to the ECX platform.

- 3. Provide Equinix with the ID of your Alibaba Cloud account.
 - You can log on to the Alibaba Cloud Management Console, click the user avatar in the upper-right corner of the page, and then click Security Settings in the left-side navigation pane to view Account ID.
- 4. Wait for Equinix to create a shared port.
- 5. to accept the shared port. For more information, see Operation guide for tenants.

4.2. Operation guide for Express Connect partners

After you acquire the permissions to create shared ports, you can create shared ports for tenants to access resources on Alibaba Cloud. Each shared port can be associated with a virtual border router (VBR). This topic describes the operations that Express Connect partners must perform when tenants use pre-installed Express Connect circuits to connect to Alibaba Cloud.

Requirements

Before you start, make sure that the following requirements are met:

- Two or more Express Connect circuits are connected to different access points of Alibaba Cloud. Permissions to access a resource on Alibaba Cloud are acquired. To apply for permissions to access a resource on Alibaba Cloud, contact customer service.
- The service terms in Limits on networks are met.
- The switch that connects to the network of the tenant supports bandwidth adjustment and traffic monitoring. Traffic monitoring is enabled for the switch to collect statistics about bandwidth (bit/s), packet loss rate (bit/s), packet forwarding rate (pps), and data transfer (bytes).
- The following traffic throttling features are configured on the customer-premises equipment (CPE): Quality of Service (QoS) policies and Address Resolution Protocol (ARP) throttling. In most cases, the limit is set to one ARP packet per second per tenant.
- If Internet Control Message Protocol (ICMP) throttling is configured, the limit on ICMP echo requests must be set to a value greater than 500 pps.
- The maximum bandwidth is set for the hosted connection that you want to create for the tenant. The sum of maximum bandwidth that you set for all hosted connections over an Express Connect circuit cannot be greater than the maximum bandwidth of the Express Connect circuit.
- A Virtual Local Area Network (VLAN) ID is assigned to each shared port. The VLAN IDs of shared ports that belong to the same Express Connect circuit must be unique.
- For tenants that require high availability, they can associate their shared ports with different Express Connect circuits.

Prerequisites

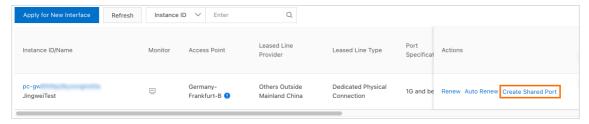
- The permissions to create shared ports are acquired. To apply for the permissions, contact customer service.
- The Express Connect circuits are installed and enabled. For more information, see Create a dedicated connection over an Express Connect circuit.
- To create a shared port for a new hosted connection, you must acquire the account ID of the tenant.
- To create a shared port for an existing hosted connection of a tenant, take note of the following items:

- Before you start, you must notify the tenant and request the tenant to enable billing for outbound data transfer.
- Make sure that the VBR associated with the hosted connection supports bandwidth adjustment.
- By default, the tenant must pay for the shared port. If you want to pay for the shared port with the current Express Connect partner account, contact customer service to acquire the required permissions.

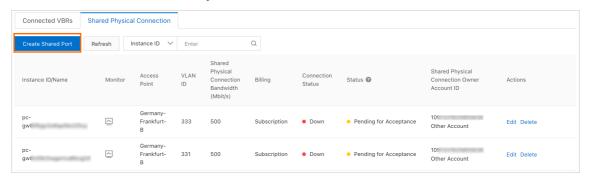
Create a shared port for a new hosted connection

If this is the first time a tenant uses your pre-installed Express Connect circuit, you must create a shared port to establish a connection based on the business requirements of the tenant.

- 1.
- 2.
- 3. You can use one of the following methods to navigate to the Create Shared Port panel.
 - On the **Physical Connections** page, find the Express Connect circuit that you want to manage and click **Create Shared Port** in the **Actions** column.



• On the **Physical Connections** page, find the Express Connect circuit that you want to manage and click its ID. On the **Shared Physical Connection** tab, click **Create Shared Port**.



4. In the Create Shared Port panel, set the parameters of the shared port and click OK.

Parameter	Description
Account ID	Enter the account ID of the tenant for which you want to create the shared port. Pay by Other Account is selected by default, which specifies the tenant to pay the resource usage fee for the shared port.

Parameter	Description
VLAN ID	 You can isolate VBRs by assigning a VLAN ID to each VBR. Valid values of VLAN ID: 0 to 2999. If the VLAN ID is set to 0, the switch port of the VBR is a Layer 3 router interface instead of a VLAN interface. When a Layer 3 router interface is used, each Express Connect circuit corresponds to a VBR. 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. When a Layer 3 VLAN subinterface is used, each VLAN ID corresponds to a VBR. In this case, the Express Connect circuit with which the VBR is associated can be used to connect to VPCs that belong to different Alibaba Cloud accounts. VBRs in different VLANs are isolated from each other at Layer 2. Note After you create a shared port for a tenant, you must notify the tenant to accept the shared port. Then, the tenant can create a VBR that uses the specified VLAN ID for the shared port. The tenant is not allowed to change the VLAN ID of the VBR.
Shared Physical Connection Bandwidth Limit	You can specify a bandwidth value as needed.

After you create the shared port, the shared port appears on the **Shared Physical Connection** tab and its **Status** changes to **Pending for Acceptance**.

- 5. In the message that appears, click **OK**.
- 6. Notify the tenant to accept the shared port and pay the resource usage fee. For more information, see Operation guide for tenants.

Create a shared port for an existing hosted connection of a tenant

If you have created a hosted connection for a tenant before, you can add a shared port to the hosted connection. Your service is not interrupted in this process. The newly added shared port is displayed in the tenant account. After the tenant accepts the shared port, you must confirm it in the console. Then, the VBR is automatically transferred to the tenant account and associated with the shared port.

After the VBR is transferred to the tenant account, Alibaba Cloud no longer charges VBR fees. If you have prepaid VBR fees, you can request a refund. For more information, see Rules for canceling the subscription of an Alibaba Cloud service.

- 1.
- 2.
- 3.
- 4. On the Connected VBRs tab, find the VBR of the tenant.



- 6. On the Connected VBRs tab, find the VBR that you want to manage and choose : > Transform to Shared Port in the Actions column. In the message that appears, click OK.
 - **Pay by Other Account** is selected by default, which specifies the tenant to pay the resource usage fee for the shared port.
- 7. Notify the tenant to accept the shared port and pay the resource usage fee. For more information, see Operation guide for tenants.
- 8. On the **Connected VBRs** tab, find the VBR and choose : > **Confirm**. In the message that appears, click **OK**.

View monitoring data of data transfer

You can view the outbound data transfer of a shared port in the console.

- 1.
- 2.
- 3. Find the hosted connection that you want to manage and click in the **Monitor** column.

By default, the monitoring data within the last day is displayed. You can view monitoring data by hour or by day. The system allows you to select a predefined time period or specify a custom time range.

- Predefined time periods:
 - To query monitoring data by day, select 1 day, 7 days, 15 days, or 30 days.
 - To query monitoring data by hour, select 1 hour, 6 hours, 12 hours, or 24 hours.
- Custom time period: If you set the time granularity to Hourly, you can specify a time period in the last 24 hours. If you set the time granularity to Daily, you can specify a time period in the last 30 days.

Modify the VLAN ID of a shared port

VBRs that belong to different VLANs are isolated from each other based on VLAN IDs. Express Connect partners can change the VLAN IDs of shared ports as needed. However, the VLAN ID of each shared port must be unique in the same Express Connect circuit.

- 1.
- 2.
- 3.
- 4. Click the **Shared Physical Connection** tab, find the shared Express Connect circuit that you want to manage and click **Edit** in the **Actions** column.
- 5. In the Modify Shared Port dialog box, specify VLAN ID and click OK.

Disable an instance

You can disable instances in your Express Connect service after the payment of the instances become overdue. For example, you can disable a connection over an Express Connect circuit, a VBR, or a shared port. Disabled instances will not be charged or automatically released. You can resume the instances anytime.

- 1.
- 2.
- 3. You can disable the following types of instances: connections over Express Connect circuits, VBRs, and shared ports.
 - o Disable a connection over an Express Connect circuit
 - a. On the **Physical Connections** page, find the connection over the Express Connect circuit that you want to disable and click **Terminate Connection** in the **Actions** column.
 - b. In the Terminate Physical Connection message, click OK.
 - o Disable a VBR
 - a.
 - b. On the Connected VBRs tab, find the VBR that you want to disable and choose : >

Terminate Connection in the Actions column.

- c. In the Terminating the VBR message, click OK.
- o Disable a shared port
 - a.
 - b. Click the **Shared Physical Connection** tab, find the shared port that you want to disable and click **Terminate Connection** in the **Actions** column.
 - c. In the Terminate Physical Connection message, click OK.

After you disable an instance, the status changes to **Disabled**. You can click **Recover** in the **Actions** column to resume the instance.

Delete a VBR

You can delete VBRs that you no longer need. You can delete VBRs within your account anytime. To delete a VBR that belongs to another account, disable the VBR first. For more information, see Disable an instance.

Note This section describes how to delete a VBR that belongs to a tenant account. To delete a VBR that belongs to your current account, see Delete a VBR.

- 1.
- 2.
- 3.
- On the Connected VBRs tab, find the VBR that you want to delete and choose ; > Delete in the Actions column.
- 5. In the Delete VBR message, click OK.

Delete a shared port

You can delete shared ports that you no longer need. Before you delete a shared port, you must delete the VBR that is associated with the shared port. For more information, see Delete a VBR.

- 1.
- 2.
- 3.
- 4. Click the **Shared Physical Connection** tab, find the shared port that you want to delete and click **Delete** in the **Actions** column.
- 5. In the Confirm Deletion message, click OK.

References

- CreateVirtualPhysicalConnection: creates a hosted connection.
- CreateVpconnFromVbr: adds a shared port to a hosted connection.
- UpdateVirtualPhysicalConnection: modifies the VLAN ID of a hosted connection.
- TerminatePhysicalConnection: disables a connection over an Express Connect circuit.
- TerminateVirtualBorderRouter: disables a VBR.
- DeleteVirtualBorderRouter: deletes a VBR.
- DeletePhysicalConnection: deletes a connection over an Express Connect circuit.
- CreatePhysicalConnectionOccupancyOrder: generates an order for resource usage when an Express Connect partner is specified to pay the resource usage fee.

4.3. Operation guide for tenants

Some Express Connect partners have already connected their networks to the access points of Alibaba Cloud. If you choose one of these Express Connect partners, you need only to connect your data center to the access point of the Express Connect partner, and then request the Express Connect partner to create a hosted connection for you.

Prerequisites

- One of the following preparations is completed by the Express Connect partner:
 - A shared port is created to establish a new hosted connection. For more information, see Create a shared port for a new hosted connection.
 - A shared port is added to an existing hosted connection. For more information, see Create a shared port for an existing hosted connection of a tenant.
- Billing for outbound data transfer is enabled. For more information, see Enable billing for outbound data transfer.
- You have read and understand the billing rules of hosted connections over Express Connect circuits. For more information, see Billing of hosted connections over Express Connect circuits.

Procedure

Scenario

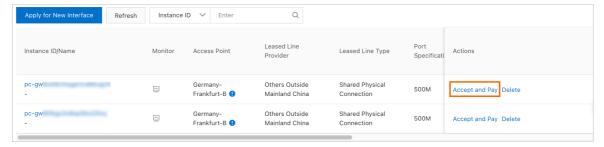
Scenario	Procedure		
Create a shared port to establish a new hosted connection	 The Express Connect partner creates a shared port. For more information, see Create a shared port for a new hosted connection. The tenant accepts the shared port. For more information, see Accept a shared port. If the tenant is specified as the payer, the tenant must pay the resource usage fee when the tenant accepts the shared port. If the Express Connect partner is specified as the payer, the tenant does not need to pay the resource usage fee. 		
	3. The tenant creates a virtual border router (VBR). For more information, see Create a VBR.		
	 The Express Connect partner adds a shared port to an existing hosted connection of a tenant. For more information, see Create a shared port for an existing hosted connection of a tenant. 		
	The tenant accepts the shared port. For more information, see Accept a shared port.		
Add a shared port to an	 If the tenant is specified as the payer, the tenant must pay the resource usage fee when the tenant accepts the shared port. 		
existing hosted connection.	 If the Express Connect partner is specified as the payer, the tenant does not need to pay the resource usage fee. 		
	The Express Connect partner confirms the shared port. For more information, see Confirm the shared port of a hosted connection.		
	After the Express Connect partner confirms the shared port, the VBR that the Express Connect partner has created for the tenant is automatically associated with the shared port. In this case, the tenant does not need to create a VBR.		

Step 1: Accept a shared port

After the Express Connect partner creates a shared port for a new hosted connection or adds a shared port for your existing hosted connection, you must accept the shared port in the Express Connect console and pay the resource usage fee.

Note If the payment is already completed by the Express Connect partner, you do not need to pay the resource usage fee.

- 1.
- 2.
- 3. On the **Physical Connections** page, find the hosted connection that you want to manage and click **Accept and Pay** in the **Actions** column.



- 4. In the Accept message, click OK.
- 5. In the panel that appears, confirm the information such as the region and specification of the shared port, click **Buy Now**, and then complete the payment.

After you complete the payment, the **Status** of the hosted connection changes to **Enabled** and the status of the **Construction Procedure** changes to **Complete**.

Note After the tenant accepts the shared port, the Express Connect partner must confirm the shared port. Then, the VBR is associated with the newly added shared port. The configuration of the VBR is not changed and your service is not interrupted in this process. For more information, see Confirm a shared port.

Step 2: Create a VBR

After you accept the shared port, you must create a VBR to associate with the shared port. The VBR is used to exchange data between a virtual private cloud (VPC) and your data center. You can create only one VBR for each shared port.

Notice If the Express Connect partner has created a VBR for you before, you do not need to create a VBR. After you Step 1: Accept a shared port that the Express Connect partner adds to your hosted connection, the VBR is automatically associated with the shared port.

- 1.
- 2.
- 3. On the **Physical Connections** page, find the hosted connection that you want to manage and click its ID.
- 4. On the Connected VBRs tab, click Create VBR.
- 5. In the Create VBR panel, set the following parameters and click OK.

Parameter	Description	
Account Type	By default, Current account is selected, which specifies the Alibaba Cloud account with which you are logged on.	
Name	Enter a name for the VBR.	
Physical Connection Interface	In this example, Shared Physical Connection is selected. Then, you must select a hosted connection over an Express Connect circuit from the dropdown list. Make sure that the Express Connect circuit is installed and works as expected.	

Parameter	Description
VLAN ID	By default, the VLAN ID specified by the Express Connect partner is displayed. You cannot change the VLAN ID.
Peer IPv4 Address of Gateway at Alibaba Cloud Side	Specify an IPv4 address for the VBR.
Peer IPv4 Address of Gateway at Customer Side	Specify an IPv4 address for the gateway device in the data center.
Subnet Mask (IPv4 Address)	Enter the subnet mask of the IPv4 addresses that you specified for the VBR and the gateway device in the data center. You can enter a long subnet mask because only two IP addresses are required.

Note After you create the VBR, you can set the maximum bandwidth of the VBR, modify the configuration of the VBR, or delete the VBR. For more information, see Create a VBR.

View monitoring data of data transfer

You can view the outbound data transfer of a shared port in the console.

- 1.
- 2.
- 3. Find the hosted connection that you want to manage and click in the **Monitor** column.

By default, the monitoring data within the last day is displayed. You can view monitoring data by hour or by day. The system allows you to select a predefined time period or specify a custom time range.

- Predefined time periods:
 - To query monitoring data by day, select 1 day, 7 days, 15 days, or 30 days.
 - To query monitoring data by hour, select 1 hour, 6 hours, 12 hours, or 24 hours.
- Custom time period: If you set the time granularity to Hourly, you can specify a time period in the last 24 hours. If you set the time granularity to Daily, you can specify a time period in the last 30 days.

References

- CreatePhysicalConnectionOccupancyOrder: creates an order for resource usage.
- ConfirmPhysicalConnection: changes the status of a connection over an Express Connect circuit to Confirmed.
- CreateVirtualBorderRouter: creates a VBR.

5.Monitor Express Connect circuits and configure alert rules

Express Connect is integrated with CloudMonitor. You can view the status of Express Connect circuits updated in real time and configure alert rules. This helps you gain deep insights into Express Connect circuits and detect connectivity errors at the earliest opportunity to prevent service interruptions.

Prerequisites

- A connection over an Express Connect circuit is established. For more information, see Create a dedicated connection over an Express Connect circuit or Overview.
- A contact group is created before you configure alert rules. For more information, see Create an alert contact or alert contact group.

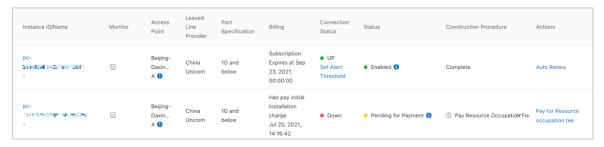
View the status of Express Connect circuits

The status of Express Connect circuits is updated in real time to help you detect connectivity errors at the earliest opportunity.

1.

2.

- 3. View the status of an Express Connect circuit in the Connection Status column.
 - Notice The Connection Status column displays the actual status of an Express Connect circuit only after the installation of the Express Connect circuit and the payment are completed. Otherwise, the Connection Status column displays Down.
 - **UP**: The Express Connect circuit is active.
 - You can configure alert rules for an Express Connect circuit only when the **Connection Status** column displays **UP**.
 - **Down**: The installation of the Express Connect circuit is not completed or the Express Connect circuit is disconnected.



Configure alert rules

You can configure alert rules for an Express Connect circuit only when the **Connection Status** column displays **UP**. After you configure alert rules, the system generates alerts when the Express Connect circuit is down. This helps you detect connectivity errors at the earliest opportunity and prevent service interruptions.

Note The following procedure shows how to configure alert rules for an Express Connect circuit in the Express Connect console. For more information about how to configure alert rules for an Express Connect circuit in the CloudMonitor console, see Create an alert rule.

- 1.
- 2.
- 3. Find the ID of the Express Connect circuit for which you want to configure alert rules and click Set Alert Threshold in the Connection Status column.
- 4. On the ExpressConnect-PORT page, click Create Alert Rule.
- 5. On the Create Alert Rule page, set the following parameters and click Confirm.

Parameter	Description		
Product	The name of the service that you want to monitor by using CloudMonitor. ExpressConnect-PORT is selected in this example.		
Resource Range	 The resources to which you want to apply the alert rule. If you select All Resources, the system generates alerts when all Express Connect circuits that belong to the current account are down. If you select Instances, you must also specify the region and ID of an Express Connect circuit. The system generates alerts only when the specified Express Connect circuit is down. 		
Alert Rule	Enter a name for the alert rule.		
Rule Description	Specify a condition for the alert rule. An alert is triggered when the condition of the alert rule is met. In this example, an alert is triggered when the value of PhysicalConnectionStatus meets the condition Status<1.		
Mute for	The interval at which CloudMonitor resends alert notifications before the alert is cleared. An alert is triggered when the condition of the alert rule is met. The system does not resend alert notifications when the alert is triggered again within the mute period. If the alert is not cleared after the mute period ends, CloudMonitor resends alert notifications.		
Effective Period	The period of time during which the alert rule is effective. CloudMonitor monitors a resource and generates alerts only when the alert rule is effective.		
Notification Contact	The contact group to which alert notifications are sent.		
Notification Methods	The methods that are used to send alert notifications. You can send alert notifications only through emails and DingTalk messages.		

Parameter	Description
Auto Scaling	If you select Auto Scaling , a specific scaling rule is triggered when an alert is generated. You must specify Region , ESS Group , and ESS Rule if you select this option. • For more information, see Create a scaling group. • For more information, see Create a scaling rule.
Log Service	If you select Log Service , the alert message is written to Log Service after an alert is generated. You must specify Region , Project , and Logstore if you select this option. For more information, see Getting Started .
Email Remark	The additional information that you want to include in each alert notification sent through an email.
HTTP CallBack	The publicly-accessible webhook URL. CloudMonitor pushes alert notifications to this URL through HTTP POST requests. For more information, see Use the alert callback feature to send notifications about threshold-triggered alerts.

View monitoring data of an Express Connect circuit

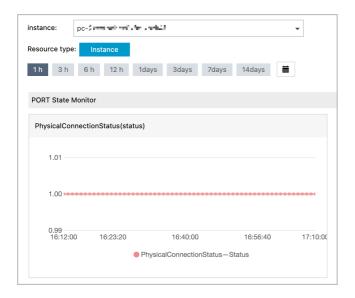
You can analyze the monitoring data of an Express Connect circuit collected within a specified time range.

1.

- 2. In the left-side navigation pane, click **Cloud products**. On the page that appears, enter **ExpressConnect-PORT** into the search box, and then find and click ExpressConnect-PORT.
- 3. On the ExpressConnect-PORT page, select a region in the top navigation bar. Then, click the PORT List tab, find the Express Connect circuit that you want to manage, and then click Monitoring Charts in the Actions column.

By default, the system displays monitoring data collected within the last hour. You can select 1 hour, 3 hours, 6 hours, 12 hours, 1 day, 3 days, 7 days, or 14 days on the dashboard, or specify a custom time range.

- If the status of the Express Connect circuit displays 1, it indicates that the Express Connect circuit is **UP**.
- If the status of the Express Connect circuit displays **0**, it indicates that the Express Connect circuit is **Down**.



6.Locations of access points

This topic describes the locations of Alibaba Cloud access points. You can select an access point that is nearest to your data center based on the information in this topic.

Alibaba Cloud access points

This topic describes the locations of access points as a reference for users of dedicated Express Connect circuits. For more information about the detailed location of an access point, see the Letter of Authorization (LOA) of the dedicated Express Connect circuit for which you applied.

Locations of Alibaba Cloud access points in China

Notice The following access points do not support 40 Gbit/s or 100 Gbit/s ports: Beijing-Fengtai-A, Shanghai-Baoshan-C, Hangzhou-Jianggan-B, Shenzhen-Nanshan-A, and HK-KwaiChung-A.

Region	Access point	Connectivity provider	Landmark
China (Qingdao)	Qingdao-Laoshan- A	China Unicom	Qingdao International Golf Club
	Qingdao-Licang-A	Carrier-neutral	Hengxing University
	Beijing-Changping- A	China Telecom	Riverside Park of Future Science City
	Beijing-Chaoyang- B	Carrier-neutral	Dingxiang Park
	Beijing-Chaoyang- C	Carrier-neutral	BOE Universal Business Park
	Beijing-Daxing-A	GDS Services	Real Estate Registry of Beijing Economic and Technological Development Zone
	Beijing-Daxing-B	China Unicom	Beijing Yizhuang Experimental School
	Beijing-Daxing-C	China Unicom	Beijing Yizhuang Experimental School
	Beijing-Daxing-E	China Unicom	China Railway Jisheng Logistics Mansion
China (Beijing)	Beijing-Fengtai-A	China Internet Exchange	Fengtai Case Management Center
	Beijing-Haidian-A	Carrier-neutral	Fengying Park
	Beijing-Langfang- A	Alibaba Cloud	Longhe Park

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Region	Access point	Connectivity provider	Landmark
	Beijing-Langfang- C	Carrier-neutral	Yulong River Park
	Beijing-Shunyi-A	China Telecom	Beijing Fangzhou Skin Disease Hospital
	Beijing-Shunyi-B	Chine Mobile	Beijing Fangzhou Skin Disease Hospital
	Beijing-Yizhuang-A	21Vianet Group	Beijing Etrong International Exhibition & Convention Center
	Zhangjiakou- Miaotan-A	Alibaba Cloud	People's Government of Zhangbei
China	Zhangjiakou- Xiaoertai-A	Alibaba Cloud	People's Government of Xiao'ertai
(Zhangjiakou)	Zhangjiakou- Zhangbei-A	Alibaba Cloud	Zhangbei Zhongdu Grasslands
	Zhangjiakou- Zhangbei-B	Alibaba Cloud	Zhangbei Aeolon Wind Energy Technology Development
China (Hohhot)	Hohhot-Shengle-A	China Telecom	Inner Mongolia Ego International E- commerce Industrial Park
	Hohhot-Xincheng- A	China Unicom	Hohhot Housing Security and House Management Bureau
China (Ulanqab)	Ulanqab-Jining-A	Alibaba Cloud	Ulanqab Environmental Protection Bureau in Jining
	Ulanqab- Development Zone-A	Alibaba Cloud	Ulanqab Traffic Vocational Technical School
	Ulanqab-Qianqi-A	Alibaba Cloud	People's Government of Chaha'er Youyi Qianqi
	Hangzhou- Deqing-A	China Unicom	People's Government of Deqing
	Hangzhou- Fuyang-A	China Telecom	Changkou Public Transit Station
	Hangzhou- Jianggan-B	21Vianet Group	Wahaha Group in Xiasha
	Hangzhou-Linan-A	Watone Cloud	Qingshan Lake Fire Station
	Hangzhou- Xiaoshan-A	China Unicom	Zhejiang College of Construction

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Region	Access point	Connectivity provider	Landmark
China (Hangzhou)	Hangzhou- Xiaoshan-B	China Telecom	Powerlong Shopping Mall
	Hangzhou- Xiaoshan-D	Chine Mobile	Zhejiang College of Construction
	Hangzhou- Yuhang-A	Alibaba Cloud	Zhejiang Overseas High-level Talents Innovation Park
	Hangzhou- Yuhang-B	Alibaba Cloud	Renhe Secondary School
	Hangzhou- Yuhang-C	Alibaba Cloud	Longtian Smart Logistics Center
	Hangzhou- Yuhang-D	Alibaba Cloud	Renhe Secondary School
	Hangzhou- Yuhang-E	Alibaba Cloud	Longtian Smart Logistics Center
China (Shanghai)	Shanghai- Baoshan-A	China Telecom	People's Government of Luojingzhen
	Shanghai- Baoshan-B	China Unicom	Shanghai Customs No.6 Surveillance Zone
	Shanghai- Baoshan-C	21Vianet Group	Shanghai Baoshan International Folk Arts Exposition
	Shanghai- Baoshan-D	Chine Mobile	Shanghai Customs No.6 Surveillance Zone
	Shanghai- Fengxian-A	China Telecom	National Foreign Cultural Trade Base
	Shanghai-Jiading- A	China Telecom	Tianhua College of Shanghai Normal University
	Shanghai-Pudong- A	Chine Mobile	Pudong Jinhai Wetland Park
	Shanghai-Pudong- B	China Telecom	Senlan Sports Park
	Shanghai-Pudong- C	Carrier-neutral	Shanghai Free Trade Zone
	Shanghai-Pudong- D	China Unicom	Gaodong Ecological Park

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Region	Access point	Connectivity provider	Landmark	
	Shanghai-Pudong- E	Carrier-neutral	National Overseas Trade Center	
	Changshu-Bixi-A	Carrier-neutral	GLP Pujiang Logistics Park	
	Taicang- Huangjing-A	Alibaba Cloud	Taicang Yilin Hospital	
China (Shenzhen)	Shenzhen-Futian- A	GDS Services	Maternity & Child Healthcare Hospital in Fuqiang	
	Shenzhen- Longhua-A	China Telecom	Guanlan Middle School	
	Shenzhen- Longgang-A	Chine Mobile	Yanziling Park in Pingshan	
	Shenzhen- Nanshan-A	21Vianet Group	People's Hospital of Nanshan	
	Shenzhen- Yantian-A	China Unicom	Jiarun Building in Longgang	
China (Heyuan)	Heyuan-Gaoxin-A	Alibaba Cloud	Duntou Elementary School	
	Heyuan- Yuancheng-A	Alibaba Cloud	Haohe Environment Governance Institute	
China (Guangzhou)	Guangzhou- Huangpu-B	Carrier-neutral	Yushu Park	
	Guangzhou- Huangpu-A	Chine Mobile	South China New Materials Innovation Park	
	Guangzhou- Huangpu-C	Carrier-neutral	South China New Materials Innovation Park	
	Guangzhou- Development Zone-A	China Unicom	Dazhuang International Plaza	
China (Xi'an-Local Region)	Xi'an-Xixian-A	China Telecom	Xixian Deshang International Hospital	
	Chengdu-Gaoxin-B	China Telecom	University of Electronic Science and Technology of China in Qingshuihe	
	Chengdu- Shuangliu-A	Chine Mobile	Public Security Bureau of Certificates Application in Xihanggang	

Region	Access point	Connectivity provider	Landmark
	Chengdu- Shuangliu-B	China Unicom	Shuangliu Center on Shuanghuang Road
China (Hong Kong)	HK-ChaiWan-B	MEGA	Sino Favour Centre
	HK-Fanling-C	PCCW	On Wui Centre
	HK-KwaiChung-A	Equinix	Xinxing Centre

Locations of access points outside China

Notice The following access points do not support 10 Gbit/s, 40 Gbit/s, or 100 Gbit/s ports: Australia-Sydney-A, Australia-Sydney-B, Malaysia-KualaLumpur-A, Singapore-A, Singapore-B, India-Mumbai-A, UAE-Dubai-A, UAE-Dubai-B, US-Ashburn-A, US-Virginia-D, US-SanJose-A, Germany-Frankfurt-B, and UK-London-C.

Area	Region	Access point	Connectivity provider
	Singapore (Singapore)	Singapore-A	Equinix
		Singapore-B	GlobalSwitch
		Singapore-C	DRT
		Singapore-E	Singtel
	Australia (Sydney)	Australia-Sydney-A	GlobalSwitch
	Australia (Sydney)	Australia-Sydney-B	Equinix
	Malaysia (Kuala Lumpur)	Malaysia-KualaLumpur- A	NTT
		Malaysia-KualaLumpur-B	AIMS
	Indonesia (Jakarta)	Indonesia-Jakarta-A	DCI
Asia Pacific		Indonesia-Jakarta-B	NTT
		Indonesia-Jakarta-C	Alibaba Cloud
	Japan (Tokyo)	Japan-Tokyo-A	Equinix
		Japan-Tokyo-B	Equinix
		Japan-Tokyo-C	NEC
		India-Mumbai-A	CtrlS

Area	Regio(Mumbai)	Access point	Connectivity provider
		India-Mumbai-B	GPX
		India-Mumbai-C	NM
	South Korea (Seoul)	SouthKorea-Seoul-A	LG
	Philippines (Manila)	Philippines-Manila-A	PLDT
	Thailand (Bangkok)	Thailand-Bangkok-A	True
	Vietnam (Ho Chi Minh)	Viet nam-Ho ChiMinh-A	Viettel
	US (Silicon Valley)	US-SanJose-A	Equinix
	US (Virginia)	US-Ashburn-A	Equinix
		US-Virginia-D	Coresite
	Germany (Frankfurt)	Germany-Frankfurt-A	E-shelter
Europe & Americas		Germany-Frankfurt-B	Equinix
	UK (London)	UK-London-A	DRT
		UK-London-B	ARK
		UK-London-C	Telehouse
		UK-London-D	Equinix
Middle East	UAE (Dubai)	UAE-Dubai-A	Equinix
Milliage East	OAL (Dubai)	UAE-Dubai-B	Khazna