Enterprise Router

User Guide

Issue 01

Date 2025-11-25

HUAWEI CLOUD COMPUTING TECHNOLOGIES CO., LTD.

Trademarks and Permissions


and other Huawei trademarks are the property of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei Cloud and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Cloud Computing Technologies Co., Ltd.

Address: Huawei Cloud Data Center Jiaoxinggong Road
Qianzhong Avenue
Gui'an New District
Gui Zhou 550029
People's Republic of China

Website: https://www.huaweicloud.com/intl/en-us/

Contents

1 Service Overview

1.1 What Is an Enterprise Router?

An enterprise router connects VPCs and on-premises networks to set up a central hub network. It has high specifications, provides high bandwidth, and delivers high performance. Enterprise routers use the Border Gateway Protocol (BGP) to learn, dynamically select, or switch between routes, thereby ensuring the service continuity and significantly improving network scalability and O&M efficiency.

Figure 1-1 and **Figure 1-2** show the networks with and without enterprise routers, respectively. **Table 1-1** compares the two networks.

Figure 1-1 A network without enterprise routers

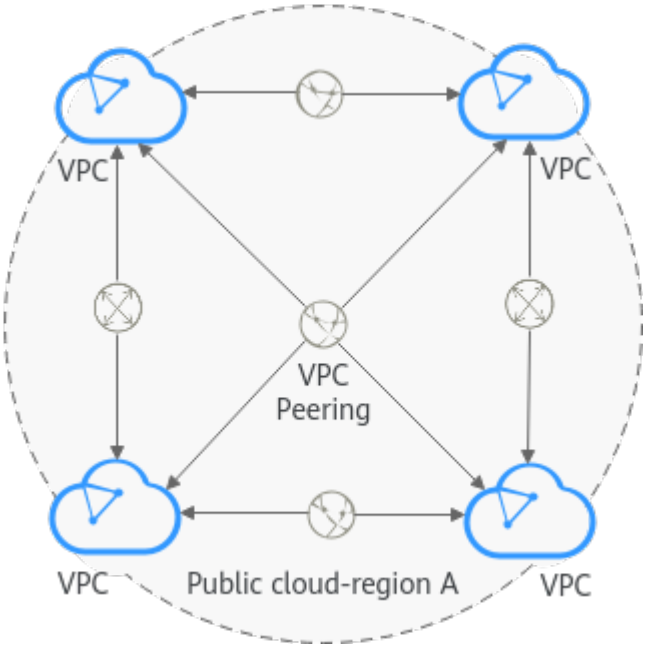


Figure 1-2 A network with enterprise routers

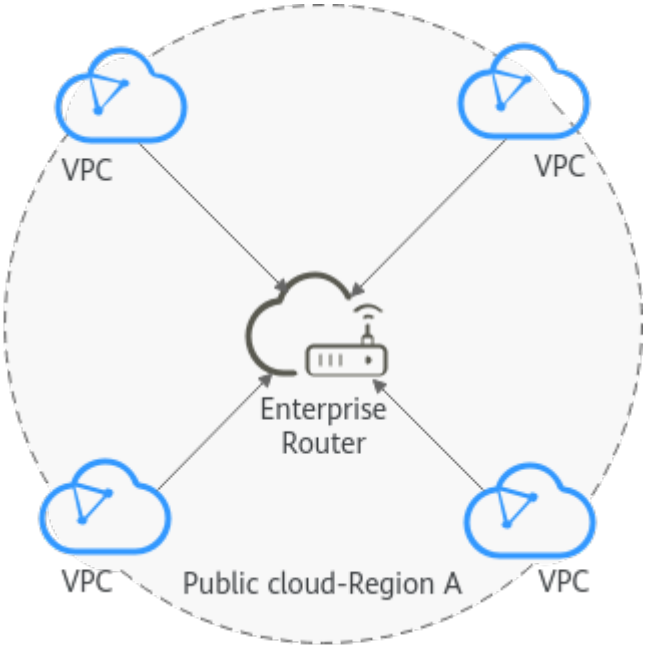


Table 1-1 Comparison between the networks with and without enterprise routers

Item	Without Enterprise Routers	With Enterprise Routers	Benefits of Using Enterprise Routers
Communications among VPCs in the same region	• Create six VPC peering connections between these four VPCs in the same region. • Add 12 routes, with three routes for each VPC to communicate with the other three VPCs.	• Attach the four VPCs to one enterprise router. This router can then handle the traffic from and to all the connected VPCs. • Add routes to the route tables of these four VPCs for routing traffic through the enterprise router. The enterprise router can automatically learn the VPC CIDR blocks and add them to its route table.	• There is no need to configure a large number of VPC peering connections. • Fewer routes need to be added, simplifying the maintenance.

The comparison shows that the network with enterprise routers is simpler, more scalable, and easier to maintain.

1.2 Why Using Enterprise Routers

Enterprise routers have the following advantages:

High Performance

Enterprise routers use exclusive resources and are deployed in clusters to deliver the highest possible performance for workloads on large-scale networks.

High Availability

Enterprise routers can be deployed in multiple availability zones to work in active-active or multi-active mode, thereby ensuring service continuity and real-time seamless switchovers.

Simplified Management

Enterprise routers can connect multiple VPCs to route traffic among them. The network topology is simpler and the network is easier to manage and maintain.

- For cross-VPC communications, you no longer need to create multiple VPC peering connections and maintain the route tables of each VPC.
- Enterprise routers can automatically learn, update, and synchronize routes, eliminating the need to manually configure or update routes whenever the network topology changes.

1.3 Functions

Enterprise Routers

An enterprise router is a high-performance centralized router that supports route learning. When creating an enterprise router, you can set parameters such as its region, AZ, and name.

After an enterprise router is created, you can still change its parameters based on service requirements.

For more information, see **Creating an Enterprise Router**.

Attachments

You can attach network instances to the enterprise router.

For more information, see **Attachment Overview**.

Route Tables

Route tables are used by enterprise routers to forward packets. Route tables contain associations, propagations, and routes.

An enterprise router can have multiple route tables. You can associate attachments with different route tables to enable communications or isolation between network instances.

For more information, see **Route Table Overview**.

Associations

Associations are created manually or automatically to associate attachments with enterprise router route tables.

- Manually: You need to select a route table and create an association in the route table for an attachment.
- Automatically: You just need to enable **Default Route Table Association** and specify the default route table. The system automatically creates an association for an attachment in the default route table.

For more information, see **Association Overview**.

Propagations

A propagation is created manually or automatically to enable an enterprise router to learn the routes to an associated attachment.

- Manually: You need to select a route table and create a propagation for an attachment in the route table.
- Automatically: You just need to enable **Default Route Table Propagation** and specify the default route table. The system automatically creates a propagation in the default route table for an attachment.

For more information, see **Propagation Overview**.

Routes

A route consists of information such as the destination address, next hop, and route type. There are two types of routes:

- Propagated routes
- Static routes

For more information, see **Route Overview**.

Sharing

Integration with Resource Access Manager (RAM) allows you to share enterprise routers in your accounts with other accounts so that these other users can attach their network instances to your enterprise routers for network connectivity.

After you share your enterprise router with other accounts, these principals can attach their network instances to your enterprise router, so that their network instances can access your enterprise router.

For more information, see **Sharing Overview**.

Flow Logs

A flow log records traffic of attachments on enterprise routers in real time. These logs allow you to monitor the network traffic of attachments and analyze network attacks, improving the O&M efficiency.

Flow logs can capture traffic of the following types of attachments:

- A VPC attachment indicates that a VPC is attached to an enterprise router. Flow logs can collect the traffic between the VPC and other attachments of the enterprise router.

For more information, see .

1.4 Permissions

If you need to assign different permissions to employees in your enterprise to control their access to your cloud resources, you can use Identity and Access Management (IAM) for fine-grained permissions management. IAM provides functions such as identity authentication, permissions management, and access control.

On the IAM console, you can create IAM users and assign permissions to control their access to specific resources. For example, you can create IAM users for software developers and assign permissions to allow them to use enterprise router resources but disallow them from performing any high-risk operations such as deleting such resources.

If your account does not need individual IAM users for permissions management, skip this topic.

IAM is a free service. You only pay for the resources in your account.

For more information, see section "IAM Service Overview" in the *Identity and Access Management Service User Guide*.

Enterprise Router Permissions

By default, new IAM users do not have any permissions assigned. You need to add them to one or more groups and attach policies or roles to these groups so that these users can inherit permissions from the groups and perform specified operations on cloud services.

An enterprise router is a project-level service deployed in a specific region. You need to select a project for which the permissions will be granted. If you select **All projects**, the permissions will be granted for all the projects. You need to switch to the authorized region before accessing an enterprise router.

Table 1-2 lists all the system-defined policies on enterprise routers.

Table 1-2 System-defined policies on enterprise routers

System Policy	Description	Type	Dependency
ER FullAccess	Administrator permissions for enterprise routers. Users with such permissions can operate and use all resources on enterprise routers.	System-defined policy	None
ER ReadOnlyAccess	Read-only permissions for enterprise routers. Users with such permissions can only view data on enterprise routers.	System-defined policy	None

Table 1-3 lists the common operations supported by each system-defined policy. You can select a proper one as required.

Table 1-3 Common operations supported by each system policy

Operation	Tenant Administrator	Tenant Guest	ER FullAccess	ER ReadOnlyAccess
Creating an enterprise router	√	x	√	x
Modifying an enterprise router	√	x	√	x
Viewing an enterprise router	√	√	√	√
Deleting an enterprise router	√	x	√	x
Adding a Virtual Private Cloud (VPC) to an enterprise router	√	x	√	x
Deleting a VPC attachment	√	x	√	x
Viewing attachments of all types	√	√	√	√
Creating a route table	√	x	√	x
Renaming a route table	√	x	√	x

Operation	Tenant Administrator	Tenant Guest	ER FullAccess	ER ReadOnlyAccess
Viewing a route table	√	√	√	√
Deleting a route table	√	x	√	x
Creating an association for an attachment in a route table	√	x	√	x
Viewing associations in a route table	√	√	√	√
Deleting an association from a route table	√	x	√	x
Creating a propagation for an attachment in the route table	√	x	√	x
Viewing a propagation in a route table	√	√	√	√
Deleting a propagation from a route table	√	x	√	x
Creating a static route	√	x	√	x
Modifying a static route	√	x	√	x
Viewing a route	√	√	√	√
Deleting a static route	√	x	√	x
Creating a flow log	√	x	√	x
Viewing a VPC flow log	√	√	√	√
Disabling a flow log	√	x	√	x
Enabling a flow log	√	x	√	x
Deleting a flow log	√	x	√	x

Operation	Tenant Administrator	Tenant Guest	ER FullAccess	ER ReadOnlyAccess
Adding a resource tag	√	x	√	x
Modifying a resource tag	√	x	√	x
Viewing a resource tag	√	√	√	√
Deleting a resource tag	√	x	√	x

Related Links

- What Is IAM?
- Creating a User and Granting Permissions

1.5 Notes and Constraints

Specifications

Table 1-4 lists the specifications of the enterprise router.

Table 1-4 Enterprise router specifications

Item	Default Setting	Adjustable
Maximum number of enterprise routers that can be created by each account	1	Contact customer service.
Maximum forwarding capability supported by each enterprise router	100 Gbit/s	Contact customer service.

Constraints

There are some constraints on using enterprise routers, as described in Table 1-5. You can follow our suggestions to handle these issues.

Table 1-5 Constraints on enterprise routers

Constraint	Suggestion
If a service VPC is being used by a shared load balancer, VPC endpoint, private NAT gateway, Distributed Cache Service (DCS), or hybrid DNS, do not attach this VPC to an enterprise router. **NOTICE** If you attach a service VPC used by ELB, VPC Endpoint, or DCS to an enterprise router, persistent connections may be intermittently interrupted during service reliability assurance, such as DR switchovers, upgrades, or elastic scaling. Ensure that the clients can automatically reconnect in case of disconnections.	Contact customer service to confirm the service compatibility. A transit VPC is preferred for networking. For details, see scheme 2 in **Selecting a Networking Scheme**.
Traffic cannot be forwarded from a VPC to its attached enterprise router if the destination of a route with an enterprise router as the next hop is set to 0.0.0.0/0 in the VPC route table and if: • An ECS in the VPC has an EIP bound. • The VPC is being used by ELB (either dedicated or shared load balancers), NAT Gateway, VPC Endpoint, or DCS.	• Suggestion 1: Change the destination address of the route. For details, see **Why Traffic Can't Be Forwarded from a VPC with a Route Destination of 0.0.0.0/0 to Its Enterprise Router?** • Suggestion 2: Use a transit VPC for networking. For details, see scheme 2 in **Selecting a Networking Scheme**.

1.6 Enterprise Router and Other Services

Table 1-6 Interactions between an enterprise router and other cloud services

Service	Interaction
Virtual Private Cloud (VPC)	You can attach VPCs to an enterprise router to enable communication between multiple VPCs without configuring a large number of VPC peering connections.
Cloud Firewall (CFW)	You can use CFW to protect traffic between VPCs.

Service	Interaction
Identity and Access Management (IAM)	You can use IAM to assign different permissions to different users to control their access to enterprise router resources.
Cloud Eye	You can use Cloud Eye to monitor the network status of enterprise routers and their attachments, and report alarms when exceptions occur, ensuring smooth service running.
Cloud Trace Service (CTS)	You can use CTS to record operations associated with your enterprise routers for future query, audit, and backtracking.
Tag Management Service (TMS)	You can use tags to identify enterprise routers and route tables.

1.7 Region and AZ

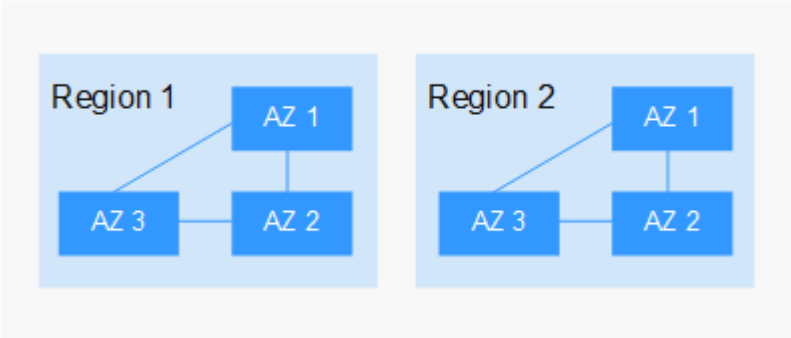
Concept

A region and availability zone (AZ) identify the location of a data center. You can create resources in a specific region and AZ.

- A region is a physical data center, which is completely isolated to improve fault tolerance and stability. The region that is selected during resource creation cannot be changed after the resource is created.
- An AZ is a physical location where resources use independent power supplies and networks. A region contains one or more AZs that are physically isolated but interconnected through internal networks. Because AZs are isolated from each other, any fault that occurs in one AZ will not affect others.

Figure 1-3 shows the relationship between regions and AZs.

Figure 1-3 Regions and AZs



Selecting a Region

You are advised to select a region close to you or your target users. This helps ensure low access latency.

Selecting an AZ

When deploying resources, consider your applications' requirements on disaster recovery (DR) and network latency.

- For high DR capability, deploy resources in different AZs within the same region.
- For lower network latency, deploy resources in the same AZ.

Regions and Endpoints

Before you use an API to call resources, specify its region and endpoint. For more details, see **Regions and Endpoints**.

2 Getting Started

2.1 Selecting a Networking Scheme

You can use enterprise routers to build a central network to simplify the network architecture. The following uses connectivity between service VPCs as an example and provides two typical networking schemes, as shown in the following figures. **Table 2-1** describes the two schemes in detail.

Figure 2-1 Networking for allowing an on-premises data center to access two service VPCs directly (scheme 1)

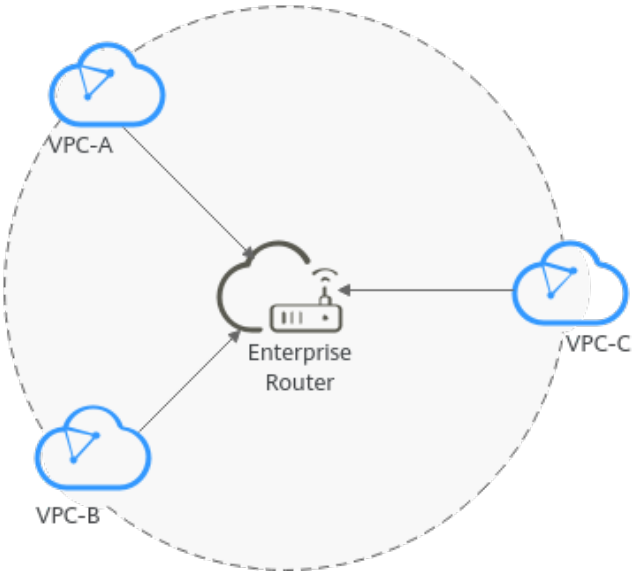


Figure 2-2 Networking for allowing an on-premises data center to access two service VPCs over a transit VPC (scheme 2)

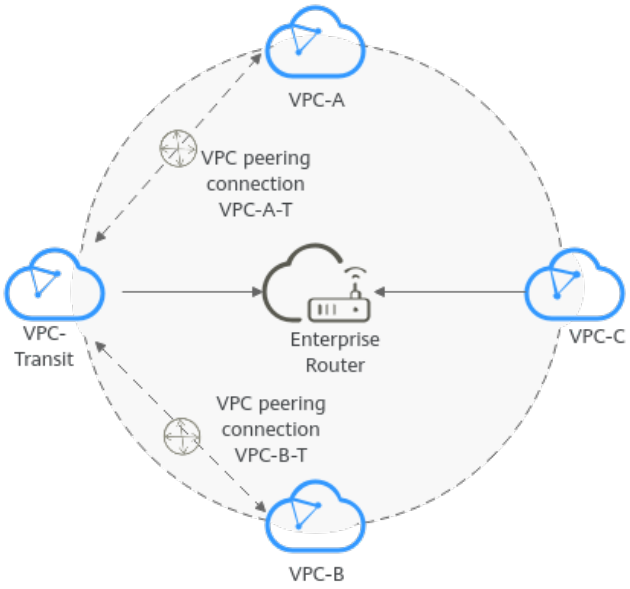


Table 2-1 Comparison between the two schemes

Scheme	Networking Architecture	Network Path Description	Remarks
Scheme 1	**Figure 2-1** All service VPCs (VPC-A, VPC-B, and VPC-C) are attached to an enterprise router.	VPC-A, VPC-B, and VPC-C are connected through the enterprise router.	For details, see **How Do I Select a Networking Scheme?**
Scheme 2	**Figure 2-2** The two service VPCs (VPC-A and VPC-B) are not attached to the enterprise router. Instead, a transit VPC (VPC-Transit) is used. The transit VPC and VPC-C are attached to the enterprise router.	• Each service VPC (VPC-A and VPC-B) is connected to the transit VPC over a VPC peering connection. • VPC-A, VPC-B, and VPC-C are connected through the transit VPC and enterprise router.	

How Do I Select a Networking Scheme?

In scheme 1, the service VPCs are directly attached to the enterprise router. In scheme 2, a transit VPC is used and attached to the enterprise router. Each service VPC is connected to the transit VPC over a VPC peering connection. Compared with scheme 1, scheme 2 costs less and eliminates some constraints, as detailed below:

- Scheme 2 frees you from the following constraints that scheme 1 has on attaching service VPCs to an enterprise router:
  - If a service VPC is used by a shared load balancer, VPC endpoint, private NAT gateway, or DCS resource, contact customer service to confirm the service compatibility and preferentially use a transit VPC for networking.
  - Traffic cannot be forwarded from a VPC to its attached enterprise router if the destination of a route with an enterprise router as the next hop is set to 0.0.0.0/0 in the VPC route table and if:
    - An ECS in the VPC has an EIP bound.
    - The VPC is being used by ELB (either dedicated or shared load balancers), NAT Gateway, VPC Endpoint, or DCS.

NOTICE

If you still want to use scheme 1 to attach service VPCs to an enterprise router, contact customer service to evaluate the feasibility.

2.2 Using an Enterprise Router to Enable Communications Between VPCs in the Same Region

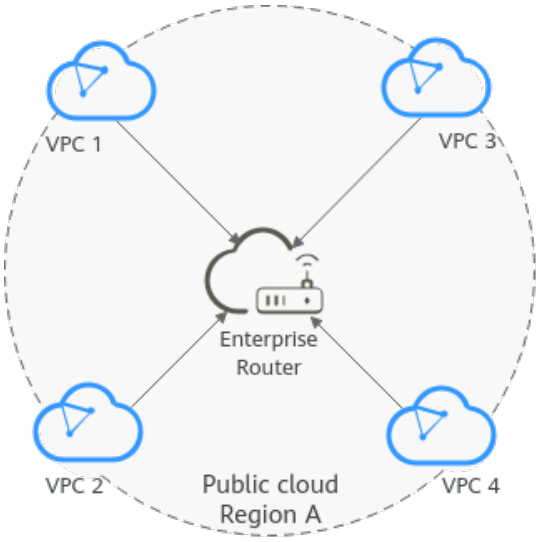
2.2.1 Overview

Solution

Four VPCs are created in region A on and they need to communicate with each other.

You can create an enterprise router in region A and attach the four VPCs to the enterprise router. The enterprise router can route traffic among the VPCs so that they can communicate with each other.

Figure 2-3 Communications among VPCs in the same region



NOTE

This document describes how to use an enterprise router to quickly allow multiple VPCs in the same region to communicate with each other.

You can share an enterprise router with different accounts to attach VPCs of these accounts to the same enterprise router for communication. For details, see **Sharing Overview**.

Procedure

Figure 2-4 shows the procedure for using an enterprise router to allow multiple VPCs in the same region to communicate with each other.

Figure 2-4 Flowchart for connecting VPCs in the same region

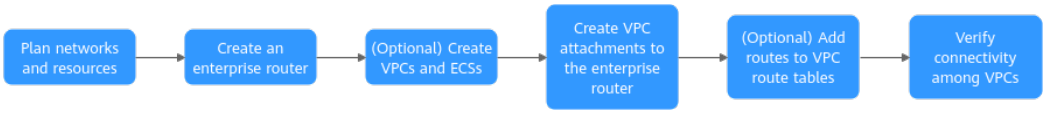


Table 2-2 Steps for connecting VPCs in the same region

Step	Description
Step 1: Plan Networks and Resources	Plan CIDR blocks and the number of resources.
Step 2: Create an Enterprise Router	Create one enterprise router for connecting VPCs in the same region.
Step 3: (Optional) Create VPCs and ECSs	Create four VPCs and four ECSs. You can change the resource quantity and specifications as needed. If you already have these resources, skip this step.
Step 4: Create VPC Attachments for the Enterprise Router	Attach the four VPCs to the enterprise router.

Step	Description
Step 5: (Optional) Add Routes to VPC Route Tables	Add routes to the route tables of the VPCs for communication with the enterprise router. • If you enable **Auto Add Routes** when creating a VPC attachment, you do not need to manually add static routes to the VPC route table. Instead, the system automatically adds routes (with this enterprise router as the next hop and 10.0.0.0/8, 172.16.0.0/12, and 192.168.0.0/16 as the destinations) to all route tables of the VPC. • If an existing route in the VPC route tables has a destination to 10.0.0.0/8, 172.16.0.0/12, or 192.168.0.0/16, the routes will fail to be added. In this case, do not enable **Auto Add Routes**. After the attachment is created, manually add routes.
Step 6: Verify Connectivity Among VPCs	Log in to the ECS and run the **ping** command to verify the connectivity among VPCs.

2.2.2 Step 1: Plan Networks and Resources

To use an enterprise router to connect VPCs in the same region, you need to:

- **Network Planning**: Plan CIDR blocks of VPCs and subnets, and route tables of VPCs and the enterprise router.
- **Resource Planning**: Plan the quantity, names, and parameters of cloud resources, including VPCs, ECSs, and the enterprise router.

Network Planning

Figure 2-5 and **Table 2-4** show the network planning and its description for communications among VPCs in the same region.

Figure 2-5 Network planning for communications among VPCs in the same region

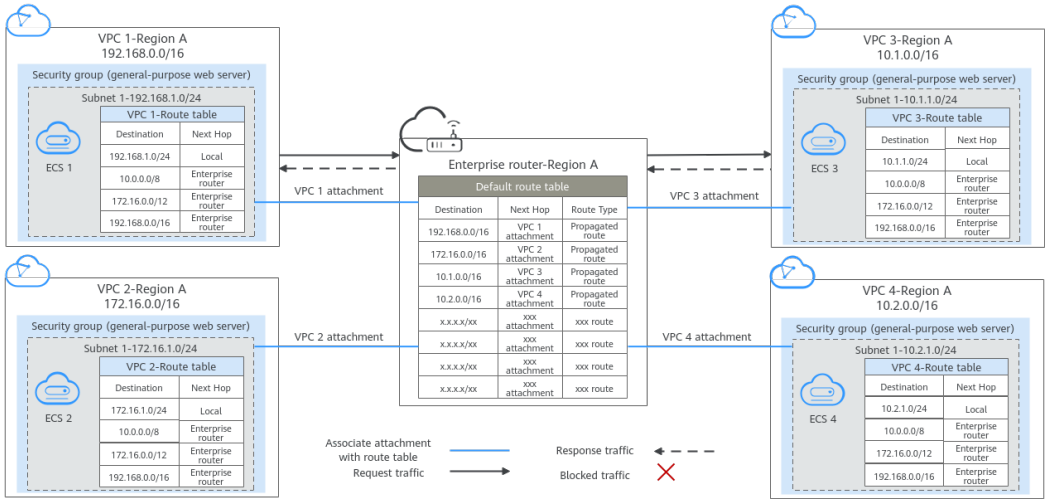


Table 2-3 Network traffic flows

Scenario	Description
Request from VPC 1 to VPC 3	1. The route table of VPC 1 has a route with next hop set to the enterprise router to forward traffic from VPC 1 to the enterprise router. 2. The route table of the enterprise router has a propagated route with next hop set to the VPC 3 attachment to forward traffic from the enterprise router to VPC 3.
Response from VPC 3 to VPC 1	1. The route table of VPC 3 has a route with next hop set to the enterprise router to forward traffic from VPC 3 to the enterprise router. 2. The route table of the enterprise router has a propagated route with next hop set to the VPC 1 attachment to forward traffic from the enterprise router to VPC 1.

Table 2-4 Network planning for communications among VPCs in the same region

Resource	Description
VPC	• The CIDR blocks of the VPCs to be connected cannot overlap with each other. In this example, the CIDR blocks of the VPCs are propagated to the enterprise router route table as the destination in routes. The CIDR blocks cannot be modified and overlapping CIDR blocks may cause route conflicts. If your existing VPCs have overlapping CIDR blocks, do not use propagated routes. Instead, you need to manually add static routes to the route table of the enterprise router. The destination can be VPC subnet CIDR blocks or smaller ones. • Each VPC has a default route table. • Routes in the default route table can be: – Local: a system route for communications between subnets in a VPC. – Enterprise router: custom routes with 10.0.0.0/8, 172.16.0.0/12, and 192.168.0.0/16 as the destinations for routing traffic from a VPC subnet to the enterprise router. See **Table 2-5** for route details.

Resource	Description
Enterprise router	After **Default Route Table Association** and **Default Route Table Propagation** are enabled and a VPC attachment is created, the system will automatically: • Associate VPC attachments with the default route table of the enterprise router. • Propagate VPC attachments with the default route table of the enterprise router. The route table automatically learns the VPC CIDR block as the destination of routes. For details, see **Table 2-6**.
ECS	The four ECSs are in different VPCs. If the ECSs are associated with different security groups, add rules to their security groups to allow access to each other.

Table 2-5 VPC route table

Destination	Next Hop	Route Type
10.0.0.0/8	Enterprise Router	Static route (custom)
172.16.0.0/12	Enterprise Router	Static route (custom)
192.168.0.0/16	Enterprise Router	Static route (custom)

NOTE

- If you enable **Auto Add Routes** when creating a VPC attachment, you do not need to manually add static routes to the VPC route table. Instead, the system automatically adds routes (with this enterprise router as the next hop and 10.0.0.0/8, 172.16.0.0/12, and 192.168.0.0/16 as the destinations) to all route tables of the VPC.
- If an existing route in the VPC route tables has a destination to 10.0.0.0/8, 172.16.0.0/12, or 192.168.0.0/16, the routes will fail to be added. In this case, do not enable **Auto Add Routes**. After the attachment is created, manually add routes.
- Do not set the destination of a route (with an enterprise router as the next hop) to 0.0.0.0/0 in the VPC route table. If an ECS in the VPC has an EIP bound, the VPC route table will have a policy-based route with 0.0.0.0/0 as the destination, which has a higher priority than the route with the enterprise router as the next hop. In this case, traffic is forwarded to the EIP and cannot reach the enterprise router.

Table 2-6 Enterprise router route table

Destination	Next Hop	Route Type
VPC 1 CIDR block: 192.168.0.0/16	VPC 1 attachment: er-attach-01	Propagated route
VPC 2 CIDR block: 172.16.0.0/16	VPC 2 attachment: er-attach-02	Propagated route

Destination	Next Hop	Route Type
VPC 3 CIDR block: 10.1.0.0/16	VPC 3 attachment: er-attach-03	Propagated route
VPC 4 CIDR block: 10.2.0.0/16	VPC 4 attachment: er-attach-04	Propagated route

Resource Planning

The enterprise router, VPCs, and ECSs must be in the same region. You can select any AZ within the region.

NOTE

The following resource details are only examples. You can modify them as required.

- One enterprise router

Table 2-7 Enterprise router details

Enterprise Router Name	ASN	Default Route Table Association	Default Route Table Propagation	Association Route Table	Propagation Route Table	Attachment
er-test-01	64800	Enable	Enable	Default route table	Default route table	er-attach-01
						er-attach-02
						er-attach-03
						er-attach-04

- Four VPCs, each with a unique CIDR block

Table 2-8 VPC details

VPC Name	VPC CIDR Block	Subnet Name	Subnet CIDR Block	Association Route Table
vpc-demo-01	192.168.0.0/16	subnet-demo-01	192.168.1.0/24	Default route table
vpc-demo-02	172.16.0.0/16	subnet-demo-02	172.16.1.0/24	Default route table

VPC Name	VPC CIDR Block	Subnet Name	Subnet CIDR Block	Association Route Table
vpc-demo-03	10.1.0.0/16	subnet-demo-03	10.1.1.0/24	Default route table
vpc-demo-04	10.2.0.0/16	subnet-demo-04	10.2.1.0/24	Default route table

- Four ECSs, respectively, in four VPCs

Table 2-9 ECS details

ECS	Image	VPC	Subnet	Security Group	Private IP Address
ecs-demo-01	Public image: EulerOS 2.5 6	vpc-demo-01	subnet-demo-01	sg-demo (general-purpose web server)	192.168.1.12
ecs-demo-02		vpc-demo-02	subnet-demo-02		172.16.1.189
ecs-demo-03		vpc-demo-03	subnet-demo-03		10.1.1.105
ecs-demo-04		vpc-demo-04	subnet-demo-04		10.2.1.83

2.2.3 Step 2: Create an Enterprise Router

To connect VPCs in the same region, you only need to create one enterprise router. Perform the following operations to create an enterprise router:

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Click **Create Enterprise Router** in the upper right corner.

The **Create Enterprise Router** page is displayed.

Step 5 Configure the parameters based on **Table 2-10**.

Table 2-10 Parameters for creating an enterprise router

Parameter	Setting	Example Value
Region	Select the region nearest to your target users. Once the enterprise router is created, the region cannot be changed.	-
AZ	Select two AZs to deploy your enterprise router. You can change them after the enterprise router is created.	AZ1 AZ2
Enterprise Project	Select an enterprise project for the enterprise router. You can change it after the enterprise router is created.	default
Name	Specify the enterprise router name. You can change it after the enterprise router is created.	er-test-01
ASN	Enter an ASN based on your network plan. It cannot be changed after the enterprise router is created.	64800
Default Route Table Association	If you select this option, you do not need to create route tables or associations. You can change your option after the enterprise router is created.	Enable
Default Route Table Propagation	If you select this option, you do not need to create route tables, propagations, or routes. You can change your option after the enterprise router is created.	Enable
Auto Accept Shared Attachments	If you do not select this option, you must accept the requests for creating attachments to this enterprise router from other users with whom this enterprise router is shared.	Disable
Tag	Add tags to help you identify your enterprise router. You can change them after the enterprise router is created.	**Tag key**: test **Tag value**: 01
Description	Provide supplementary information about the enterprise router. You can change it after the enterprise router is created.	-

Step 6 Click **Create Now**.

Step 7 Confirm the enterprise router configurations and click **Submit**.

The enterprise router list is displayed.

Step 8 Check the enterprise router status.

If the status changes from **Creating** to **Normal**, the enterprise router is successfully created.

----End

2.2.4 Step 3: (Optional) Create VPCs and ECSs

Perform the following operations to create VPCs and ECSs. If you already have VPCs and ECS, skip this step.

Constraints

- The CIDR blocks of the VPCs to be connected cannot overlap with each other.

  In this example, the CIDR blocks of the VPCs are propagated to the enterprise router route table as the destination in routes. The CIDR blocks cannot be modified and overlapping CIDR blocks may cause route conflicts.

  If your existing VPCs have overlapping CIDR blocks, do not use propagated routes. Instead, you need to manually add static routes to the route table of the enterprise router. The destination can be VPC subnet CIDR blocks or smaller ones.
- Four ECSs must be in the same security group. If your ECSs are in different security groups, add rules to their security groups to allow access to each other.

Procedure

Step 1 Create four VPCs with subnets.

For details, see "Creating a VPC with a Subnet" in the *Virtual Private Cloud User Guide*.

For VPC and subnet details in this example, see **Table 2-8**.

Step 2 Create four ECSs.

For details, see "Creating an ECS" in the *Elastic Cloud Server User Guide*.

For ECS details in this example, see **Table 2-9**.

----End

2.2.5 Step 4: Create VPC Attachments for the Enterprise Router

Perform the following operations to attach the four VPCs to the enterprise router:

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 On the **Attachments** tab, click **Create Attachment**.

The **Create Attachment** page is displayed.

Step 7 Configure the parameters based on **Table 2-11**.

Table 2-11 Parameter description

Parameter	Setting	Example Value
Name	Specify the name of the VPC attachment. You can change it after the attachment is created.	er-attach-01
Attachment Type	Select **VPC**. The type cannot be changed after the attachment is created.	VPC
Attached Resource	1. Select the VPC to be attached to the enterprise router from the drop-down list. The VPC cannot be changed after the attachment is created. 2. Select the subnet to be attached to the enterprise router from the drop-down list. The subnet cannot be changed after the attachment is created.	• VPC: vpc-demo-01 • Subnet: subnet-demo-01
Auto Add Routes	• If you enable **Auto Add Routes** when creating a VPC attachment, you do not need to manually add static routes to the VPC route table. Instead, the system automatically adds routes (with this enterprise router as the next hop and 10.0.0.0/8, 172.16.0.0/12, and 192.168.0.0/16 as the destinations) to all route tables of the VPC. • If an existing route in the VPC route tables has a destination to 10.0.0.0/8, 172.16.0.0/12, or 192.168.0.0/16, the routes will fail to be added. In this case, do not enable **Auto Add Routes**. After the attachment is created, manually add routes. • Do not set the destination of a route (with an enterprise router as the next hop) to 0.0.0.0/0 in the VPC route table. If an ECS in the VPC has an EIP bound, the VPC route table will have a policy-based route with 0.0.0.0/0 as the destination, which has a higher priority than the route with the enterprise router as the next hop. In this case, traffic is forwarded to the EIP and cannot reach the enterprise router.	Enable

Parameter	Setting	Example Value
Description	Provide supplementary description about the attachment. You can change it after the attachment is created.	-
Tag	Add tags to help you identify your attachment. You can change them after the attachment is created.	**Tag key**: test **Tag value**: 01

Step 8 Click **Create Now**.

The attachment list is displayed.

Step 9 Check the attachment status.

If the status changes from **Creating** to **Normal**, the attachment is successfully created.

Step 10 Repeat **Step 5** to **Step 9** to attach the other three VPCs to the enterprise router.

NOTICE

In the example given, **Default Route Table Association** and **Default Route Table Propagation** are enabled when you create the enterprise router. After the VPCs are attached to the enterprise router, the system will automatically:

- Associate VPC attachments with the route table of the enterprise router.
- Propagate VPC attachments to the route table of the enterprise router. The CIDR blocks of the VPCs are propagated to the route table.

----End

2.2.6 Step 5: (Optional) Add Routes to VPC Route Tables

Perform the following operations to configure the routes for the enterprise router in the VPC route table:

NOTE

- If you enable **Auto Add Routes** when creating a VPC attachment, you do not need to manually add static routes to the VPC route table. Instead, the system automatically adds routes (with this enterprise router as the next hop and 10.0.0.0/8, 172.16.0.0/12, and 192.168.0.0/16 as the destinations) to all route tables of the VPC.
- If an existing route in the VPC route tables has a destination to 10.0.0.0/8, 172.16.0.0/12, or 192.168.0.0/16, the routes will fail to be added. In this case, do not enable **Auto Add Routes**. After the attachment is created, manually add routes.

Constraints

- If your VPC only has a default route table, all subnets in it are associated with the default route table. You only need to add routes to the default route table for traffic to route through the enterprise router.

- If your VPC has multiple custom route tables and different subnets in the VPC are associated with different route tables, you need to add routes to each route table associated with the subnets for traffic to route through the enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 Locate the target attachment and click the VPC in the **Attached Resource** column.

The VPC basic information page is displayed.

Step 7 In the **Networking Components** area, click the number next to **Subnets**.

The **Subnets** page is displayed.

Step 8 Locate the target subnet and click the route table name in the **Route Table** column.

The route table details page is displayed.

Step 9 On the **Summary** tab, click **Add Route**.

The **Add Route** dialog box is displayed.

Step 10 Configure the parameters based on **Table 2-12**.

Table 2-12 Parameter description

Parameter	Setting	Example Value
Destination Type	The destination can only be **IP address**. You can set a single IP address or network segment.	IP address

Parameter	Setting	Example Value
Destination	The destination is used to route traffic from this VPC to other VPCs attached to the enterprise router. You can change it after the route is created. • Set the destination to the CIDR blocks of VPCs or their subnets that your VPC need to communicate with. • Do not set the destination of a route (with an enterprise router as the next hop) to 0.0.0.0/0 in the VPC route table. If an ECS in the VPC has an EIP bound, the VPC route table will have a policy-based route with 0.0.0.0/0 as the destination, which has a higher priority than the route with the enterprise router as the next hop. In this case, traffic is forwarded to the EIP and cannot reach the enterprise router.	10.0.0.0/8
Next Hop Type	Select **Enterprise Router**. You can change it after the route is created.	Enterprise Router
Next Hop	Select the target enterprise router. You can change it after the route is created.	er-test-01
Description	Provide supplementary information about the route. You can change the route after it is created.	-

Step 11 Click **OK**.

You can view the route in the route list.

Step 12 Repeat **Step 6** to **Step 11** to add routes to route tables of other VPCs.

----End

2.2.7 Step 6: Verify Connectivity Among VPCs

Perform the following operations to log in to each ECS and verify the network connectivity between VPCs:

Procedure

Step 1 Log in to an ECS.

In this example, use VNC provided on the management console to log in to an ECS.

Step 2 Run the following command on the ECS:

ping *IP address of the ECS*

If you log in to ecs-demo-01 to verify the connectivity between vpc-demo-01 and vpc-demo-02, run the following command:

ping 10.1.1.105

If information similar to the following is displayed, the two VPCs can communicate with each other.

```
[root@ecs-demo-01 ~]# ping 10.1.1.105
PING 10.1.1.105 (10.1.1.105) 56(84) bytes of data.
64 bytes from 10.1.1.105: icmp_seq=1 ttl=64 time=1.14 ms
64 bytes from 10.1.1.105: icmp_seq=2 ttl=64 time=0.644 ms
64 bytes from 10.1.1.105: icmp_seq=3 ttl=64 time=0.599 ms
64 bytes from 10.1.1.105: icmp_seq=4 ttl=64 time=0.639 ms
^C
--- 10.1.1.105 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 0.599/0.756/1.142/0.223 ms
[root@ecs-demo-01 ~]#
```

Step 3 Repeat **Step 1** to **Step 2** to verify the connectivity between other VPCs.

----End

3 Permissions Management

3.1 Creating a User and Granting Permissions

This section describes how to use IAM to implement fine-grained permissions control for your Enterprise Router resources. With IAM, you can:

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

If your account does not require individual IAM users, skip this topic.

Figure 3-1 shows the procedure for granting permissions.

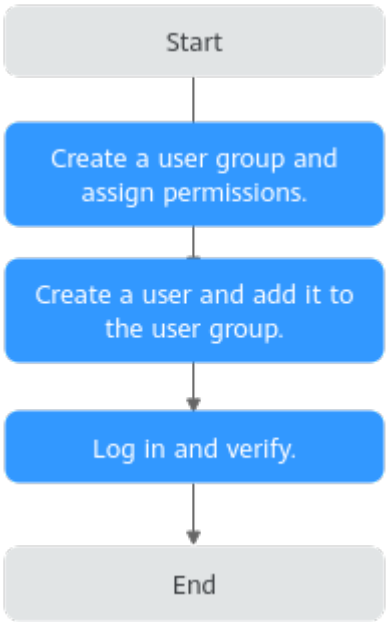
Prerequisites

You have learned about Enterprise Router permissions that can be added to the user group. For details about the system permissions supported by enterprise routers, see **Permissions**.

For the permissions of other services, see **System Permissions**.

Process Flow

Figure 3-1 Process for granting Enterprise Router permissions



1. Create a user group and assign permissions.

   Create a user group on the IAM console, and assign the **ER ReadOnlyAccess** permission to the group.
2. Create a user and add the user to the user group.

   Create a user on the IAM console and add the user to the group created in **1**.
3. Log in to the management console as the created user and verify permissions.

   On the management console, switch to the authorized region, and verify that the user only has the **ER ReadOnlyAccess** permission.

   a. Click **Service List** and choose **Enterprise Router**. Then click **Create Enterprise Router** in the upper right corner. If the enterprise router fails to be created, the **ER ReadOnlyAccess** permission has taken effect.

   b. Choose any other service in the **Service List**. If a message appears indicating insufficient permissions, the **ER ReadOnlyAccess** permission has already taken effect.

3.2 Enterprise Router Custom Policies

Custom policies can be created to supplement system-defined policies of Enterprise Router.

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Edit JSON policies from scratch or based on an existing policy.

For details about how to create custom policies, see section "Creating a Custom Policy" in the *Identity and Access Management User Guide*. The following are examples of common Enterprise Router custom policies.

Example Custom Policies

- Example 1: Allowing users to create and delete enterprise routers

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "er:instances:create",
                "er:instances:delete"
            ]
        }
    ]
}
```

- Example 2: Denying enterprise router deletion

  A policy with only Deny permissions must be used in conjunction with other policies to take effect. If the policies assigned to a user contain both Allow and Deny actions, the Deny actions take precedence over the Allow actions.

  The following method can be used if you need to assign the **ER FullAccess** permission to a user but also forbid the user from deleting enterprise routers. Create a custom policy for denying enterprise router deletion, and assign both policies to the group the user belongs to. Then the user can perform all operations on Enterprise Router except deleting enterprise routers. The following is an example of a deny policy:

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Deny",
            "Action": [
                "er:instances:delete"
            ]
        }
    ]
}
```


4 Enterprise Routers

4.1 Creating an Enterprise Router

Scenarios

Create an enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Click **Create Enterprise Router** in the upper right corner.

The **Create Enterprise Router** page is displayed.

Step 5 Configure the parameters based on **Table 4-1**.

Table 4-1 Parameters for creating an enterprise router

Parameter	Setting	Example Value
Region	Mandatory Select the region nearest to you to ensure the lowest latency possible.	-

Parameter	Setting	Example Value
AZ	Mandatory An AZ is a physical location where resources use independent power supplies and networks. AZs are physically isolated but interconnected through an internal network. Each region contains multiple AZs. If one AZ is unavailable, the other AZs in the same region continue to provide services. We recommend you to select two AZs. The enterprise router will be deployed in both AZs that work in active-active mode, ensuring reliability and disaster recovery. Traffic in an AZ is preferentially transmitted to the enterprise router in the same AZ to reduce latency.	AZ1 AZ2
Enterprise Project	Mandatory Select an enterprise project that the enterprise router will be added to. An enterprise project facilitates project-level management and grouping of cloud resources and users. The default project is **default**.	default
Name	Mandatory Enter a name for the enterprise router. The name: ● Must contain 1 to 64 characters. ● Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	er-test-01
ASN	Mandatory An autonomous system is an IP network that is managed by an entity and has the same route policy. On a BGP network, each autonomous system is assigned a unique ASN to differentiate them. Specify a dedicated ASN in the range of 64512-65534 or 4200000000-4294967294. Networks in the same region can be considered as an AS.	64800

Parameter	Setting	Example Value
Default Route Table Association	Optional Enabled by default Enabling **Default Route Table Association** can simplify network configurations. After this function is enabled: 1. An enterprise router automatically comes with a route table named **defaultRouteTable**. By default, this route table is the default association route table. After the enterprise router is created, you can create a custom route table and set it as the default association route table to replace the original one if needed. For details, see **Modifying an Enterprise Router**. 2. If you create an attachment to this enterprise router, the attachment will be automatically associated with the default association route table.	Enable
Default Route Table Propagation	Optional Enabled by default Enabling **Default Route Table Propagation** can simplify network configurations. After this function is enabled: 1. An enterprise router automatically comes with a route table named **defaultRouteTable**. By default, this route table is the default propagation route table. If both **Default Route Table Association** and **Default Route Table Propagation** are enabled, **defaultRouteTable** is not only the default association route table but also the default propagation route table. After the enterprise router is created, you can create a custom route table and set it as the default propagation route table to replace the original one if needed. For details, see **Modifying an Enterprise Router**. 2. If you create an attachment to this enterprise router, the attachment will be automatically propagated to the default propagation route table.	Enable

Parameter	Setting	Example Value
Auto Accept Shared Attachments	Optional As the owner, you can share your enterprise router with the principals. These principals can create attachments for your enterprise router. • If you do not select this option, you must manually accept attachments to this enterprise router from the accounts that this enterprise router is shared with. • If you select this option, the attachments from the accounts that this enterprise router is shared with will be automatically accepted. For details, see **Sharing Overview**.	Disable
Tag	Optional Add tags to help you quickly find your enterprise router. For details, see **Overview**.	**Tag key**: test **Tag value**: 01
Description	Optional Describe the enterprise router for easy identification.	-

Step 6 Click **Create Now**.

Step 7 Confirm the enterprise router configurations and click **Submit**.

The enterprise router list is displayed.

Step 8 Check the enterprise router status.

If the status changes from **Creating** to **Normal**, the enterprise router is successfully created.

----End

Follow-Up Operations

- After an enterprise router is created, attach network instances to the enterprise router and configure routes. For details, see **Getting Started**.
- If **Default Route Table Association** and **Default Route Table Propagation** are not enabled for an enterprise router, you need to:
  a. Create a custom route table for the enterprise router. For details, see **Creating a Route Table**.
  b. Create associations for the attachments of the enterprise router. For details, see **Creating an Association for an Attachment in a Route Table**.
  c. Use either of the following methods to add routes for the attachment to the route table:

- Create a propagation in the route table. For details, see **Creating a Propagation for an Attachment in the Route Table**.

  After the propagation is created, routes of the attachments to the enterprise router will be automatically propagated to the route table of the enterprise router.

- Add static routes to the route table. For details, see **Creating a Static Route**.

4.2 Modifying an Enterprise Router

Scenarios

This section describes how to modify settings of an enterprise router. You can:

- Modify the name of an enterprise router.
- Enable or disable **Default Route Table Association**.
- Enable or disable **Default Route Table Propagation**.
- Enable or disable **Auto Accept Shared Attachments**.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 In the upper right corner of the target enterprise router, choose **More** > **Modify Settings**.

The **Modify Settings** page is displayed.

Step 6 Modify the enterprise router based on **Table 4-2**.

Table 4-2 Parameter description

Parameter	Setting	Example Value
Name	Mandatory If you want to change the name of the enterprise router, enter a new name. The name: • Must contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	er-test-01

Parameter	Setting	Example Value
Default Route Table Association	Optional Enabling **Default Route Table Association** can simplify network configurations. After this function is enabled: 1. Select a route table for **Association Route Table**. 2. If you create an attachment to this enterprise router, the attachment will be automatically associated with the default association route table.	Enable
Association Route Table	Optional If you enable **Default Route Table Association**, select a route table for **Association Route Table**. ● You can select a custom route table. ● If you do not select a route table, a route table named **defaultRouteTable** will be automatically created as the default association route table. If there is already a route table named **defaultRouteTable**, no route table will be created.	er-rtb-b931
Default Route Table Propagation	Optional Enabling **Default Route Table Propagation** can simplify network configurations. After this function is enabled: 1. Select a route table for **Propagation Route Table**. 2. If you create an attachment to this enterprise router, the attachment will be automatically propagated to the default propagation route table.	Enable
Propagation Route Table	Optional If you enable **Default Route Table Propagation**, select a route table for **Propagation Route Table**. ● You can select a custom route table. ● If you do not select a route table, a route table named **defaultRouteTable** will be automatically created as the default propagation route table. If there is already a route table named **defaultRouteTable**, no route table will be created.	er-rtb-b931

Step 7 Click **OK**.

The enterprise router list is displayed.

Step 8 Check the enterprise router settings.

The settings take effect immediately.

----End

4.3 Viewing an Enterprise Router

Scenarios

This section describes how to view basic information about an enterprise router, including the AZs, default route table association and propagation, and creation time.

You can also view other information about the enterprise router, including:

- Attachments, such as their name, type, and attached resources. For details, see **Viewing an Attachment**.
- Route tables, such as the default route table and custom route tables. For details, see **Viewing Route Tables**.
- Tags. For details, see **Viewing a Tag**.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

In addition to the information shown in the enterprise router list, you can go to **Step 5** to view more details.

Step 5 Click the name of the target enterprise router to go to the **Basic Information** page.

View detailed information about the enterprise router.

----End

4.4 Deleting an Enterprise Router

Scenarios

Delete an enterprise router that is no longer needed.

Constraints

- An enterprise router that has attachments cannot be deleted. Delete the attachments first. For details, see **Attachment Overview**.
- An enterprise router that has route tables can be deleted directly.
- An enterprise router that is shared with other accounts can be deleted directly.
- Deleting an enterprise router will also delete all of its flow logs.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 In the upper right corner of the target enterprise router, choose **More** > **Delete**.

A confirmation dialog box is displayed.

Step 6 Click **OK**.

A deleted enterprise router cannot be recovered.

----End

5 Attachments

5.1 Attachment Overview

You can create an attachment to attach a network instance to an enterprise router. The attachment type varies by the type of network instance.

Figure 5-1 Attachments

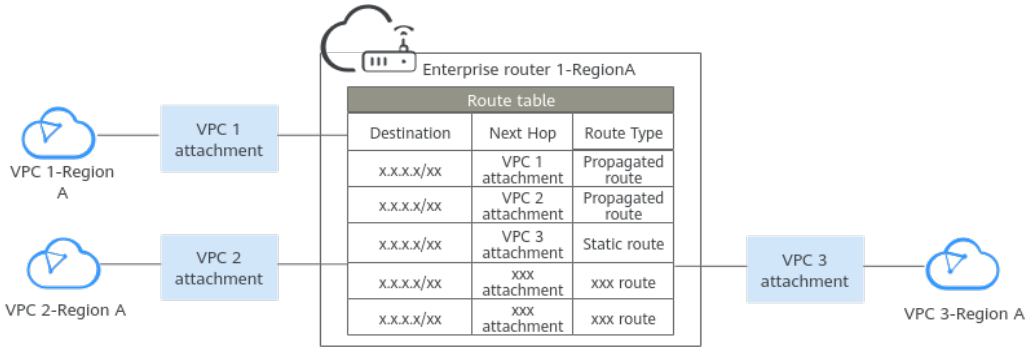


Table 5-1 Attachments

Attachment Type	Network Instance	Creating Attachments	Viewing Attachments	Deleting Attachments
VPC attachment	VPC	Creating a VPC Attachment	Viewing an Attachment	Deleting a VPC Attachment
CFW instance attachment	Cloud firewall	Creating a CFW Instance Attachment		Deleting a CFW Instance Attachment

5.2 VPC Attachments

5.2.1 Creating a VPC Attachment

Scenarios

This section describes how to attach a VPC to an enterprise router so that the VPCs attached to the enterprise router can communicate with each other.

Constraints

- If you use the propagated routes of a VPC attachment, the route table of the enterprise router automatically learns the VPC CIDR block as the destination of routes. The CIDR block cannot be changed. To ensure that routes in the route table do not conflict, the CIDR blocks of all VPCs attached to the enterprise router cannot overlap. Otherwise, communication fails.
- If your existing VPCs have overlapping CIDR blocks, do not use propagated routes. Instead, manually add static routes to the route table of the enterprise router. The destination of the routes can be VPC subnet CIDR blocks or smaller ones.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 On the **Attachments** tab, click **Create Attachment**.

The **Create Attachment** page is displayed.

Step 7 Configure the parameters based on **Table 5-2**.

Table 5-2 Parameters for adding a VPC attachment

Parameter	Setting	Example Value
Name	Mandatory Enter an attachment name. The name: • Must contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	er-attach-01
Attachment Type	Mandatory Select **VPC**, indicating that a VPC is to be attached to the enterprise router. The methods for creating attachments vary depending on the attachment type. For details, see **Attachment Overview**.	VPC
Attached Resource	Mandatory 1. Select the VPC to be attached to the enterprise router from the drop-down list. You can enter a VPC name to quickly find the target VPC. 2. Select a subnet in the selected VPC. You can enter a subnet name to quickly find the target subnet. – You can select any subnet in the VPC. All subnets in the same VPC can communicate with each other by default and the enterprise router can connect to the entire VPC. – You are advised to select a subnet that is dedicated for connecting to the enterprise router. To ensure that the subnet has enough IP addresses for the system and the enterprise router, make the subnet mask /28 or smaller. – The traffic from the enterprise router to the VPC will be routed based on the VPC route table associated with the subnet.	• VPC: vpc-A • Subnet: subnet-A01
Auto Add Routes	Optional • Enable this option if you want to automatically add routes (with this enterprise router as the next hop and 10.0.0.0/8, 172.16.0.0/12, and 192.168.0.0/16 as the destinations) to all route tables of the selected VPC. **NOTE** This parameter is only displayed when a VPC attachment is created. It cannot be enabled after the VPC attachment is created.	Enable

Parameter	Setting	Example Value
Description	Optional Describe the attachment for easy identification.	-
Tag	Optional Add tags to help you quickly find your attachment. For details, see **Overview**.	**Tag key**: test **Tag value**: 01

Step 8 Click **Create Now**.

The attachment list is displayed.

Step 9 Check the attachment status.

If the status changes from **Creating** to **Normal**, the attachment is successfully created.

----End

Follow-up Procedure

If **Default Route Table Association** and **Default Route Table Propagation** are not enabled for an enterprise router, you need to:

1. Create a custom route table for the enterprise router. For details, see **Creating a Route Table**.
2. Create associations for the attachments of the enterprise router. For details, see **Creating an Association for an Attachment in a Route Table**.
3. Use either of the following methods to add routes for the attachment to the route table:
   - Create a propagation in the route table. For details, see **Creating a Propagation for an Attachment in the Route Table**.

     After the propagation is created, routes of the attachments to the enterprise router will be automatically propagated to the route table of the enterprise router.
   - Add static routes to the route table. For details, see **Creating a Static Route**.

5.2.2 Deleting a VPC Attachment

Scenarios

This section describes how to delete a VPC attachment from an enterprise router.

Constraints

- Deleting a VPC attachment will also delete its associations, propagations, and propagated routes in the route table.

- If a VPC attachment is deleted, the next hop of its related static routes will be **Blackhole**. If the destination of a packet matches the blackhole route, the packet will be discarded.
- If flow logging is enabled for a VPC attachment, flow logging will be disabled, but collected flow logs will not be deleted.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 In the attachment list, locate the target VPC attachment, and click **Delete** in the **Operation** column.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

A deleted attachment cannot be recovered.

----End

5.3 CFW Instance Attachments

5.3.1 Creating a CFW Instance Attachment

To create a CFW instance attachment for an enterprise router, you need to select the enterprise router when creating a VPC border firewall. Then the CFW instance attachment will be displayed in the attachment list of the enterprise router.

The VPC border firewall can control access traffic between VPCs and therefore protect the VPCs.

You need to create a VPC border firewall on the CFW console by referring to section "VPC Border Firewall Overview" in *Cloud Firewall User Guide*.

5.3.2 Deleting a CFW Instance Attachment

Scenarios

If a CFW instance attachment on an enterprise router is no longer needed, perform the following operations to delete the CFW instance attachment:

Procedure

Step 1 On the CFW console, delete the CFW instance. For details, see section "Deleting CFW" in *Cloud Firewall User Guide*.

After the deletion, the CFW instance attachment status changes from **Normal** to **Unavailable**.

Step 2 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 3 Search for the target enterprise router by name.

Step 4 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 5 Locate the target CFW instance attachment and click **Delete** in the **Operation** column.

A confirmation dialog box is displayed.

Step 6 Confirm the information and click **OK**.

A deleted attachment cannot be recovered.

----End

5.4 Modifying the Basic Information of an Attachment

Scenarios

This section describes how to modify the basic information of an enterprise router attachment, including the name and description.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 In the attachment list, locate the target attachment and click **Modify** in the **Operation** column.

The **Modify Attachment** dialog box is displayed.

Step 7 Enter information as prompted.

Table 5-3 Parameters for modifying basic information of an attachment

Parameter	Setting	Example Value
Name	Mandatory Enter an attachment name. The name: • Must contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	er-attach-01
Description	Optional Describe the attachment for easy identification.	-

Step 8 Click **OK**.

The attachment list is displayed.

----End

5.5 Viewing an Attachment

Scenarios

This section describes how to view details about the attachments of an enterprise router, including the attachment name, attachment type, and attached resources.

The methods for viewing details about different types of attachments are the same. This section uses a VPC attachment as an example.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 On the **Attachments** tab, you can view:

- In the attachment list, you can view information such as the name, status, type, and attached resource.

- If you click the attachment name, you can view more information about the attachment on the displayed page, such as **ID**, **Created**, and tags.
- If you click the attached resource, you will go to the details page of the attached resource.

----End

6 Route Tables

6.1 Route Table Overview

Route tables are used by enterprise routers to forward packets. Each route table contains associations, propagations, and routes. Route tables are classified into custom route tables and default route tables.

Table 6-1 Route tables

Route Table	Description
Custom route table	• A custom route table is an additional route table you optionally create for an enterprise router. • An enterprise router can have multiple custom route tables. You can associate attachments with different route tables to enable communication or isolation between network instances.

Route Table	Description
Default route table	A default route table is automatically created when an enterprise router is created. There are two types of default route tables: default association route table and default propagation route table. You can specify a route table both as the default association route table and the default propagation route table. You can also specify one route table as the default association route and another route table as the default propagation route table. • If **Default Route Table Association** is enabled and the default association route table is specified, attachments will be associated with the default association route table. If no default association route table is specified, a route table named **defaultRouteTable** will be created and used as the default association route table. • If **Default Route Table Propagation** is enabled and the default propagation route table is specified, attachments will be propagated to the default propagation route table. If no default propagation route table is specified, a route table named **defaultRouteTable** will be created and used as the default propagation route table. • If both **Default Route Table Association** and **Default Route Table Propagation** are enabled but the default association route table and the default propagation route table are not specified, the route table named **defaultRouteTable** will be used as both the default association route table and the default propagation route table. • If there is already a route table named **defaultRouteTable**, no additional **defaultRouteTable** will be created. • You can replace the default route table with a custom route table if needed.

6.2 Creating a Route Table

Scenarios

This section describes how to create a custom route table for an enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 3 Search for the target enterprise router by name.

Step 4 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 5 On the **Route Tables** tab, click **Create Route Table**.

The **Create Route Table** dialog box is displayed.

Step 6 Configure the parameters based on **Table 6-2**.

Table 6-2 Parameters for creating a route table for an enterprise router

Parameter	Setting	Example Value
Name	Mandatory Enter a name for the route table. The name: • Must contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	er-rtb-01
Tag	Optional Add tags to help you quickly find your route table. For details, see **Overview**.	**Tag key**: test **Tag value**: 01
Description	Optional Describe the route table for easy identification.	-

Step 7 Click **OK**.

The route table list is displayed.

Step 8 View the route table status.

If the status changes from **Creating** to **Normal**, the route table is successfully created.

----End

6.3 Modifying a Route Table

Scenarios

This section describes how to modify the name and description of a route table.

Constraints

Only the name and description of route tables named **defaultRouteTable** and custom route tables can be changed.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 In the route table list, click next to the name of the target route table.

The **Modify Route Table** dialog box is displayed.

Step 7 Enter a new name.

Table 6-3 Parameter description

Parameter	Setting	Example Value
Name	Mandatory Enter a new name for the route table. The name: • Must contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	er-rtb-01
Description	Optional Modify the description of the route table.	-

Step 8 Click **OK**.

The route table list is displayed.

----End

6.4 Viewing Route Tables

Scenarios

This section describes how to view route tables of an enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 In the route table list, click different tabs to view the route table information.

On the **Basic Information** tab, you can view the status of the route table and whether **Default Route Table Association** and **Default Route Table Propagation** are enabled.

----End

6.5 Deleting a Route Table

Scenarios

Delete an enterprise router route table that is no longer needed.

Constraints

- If a route table is used as the default association route table and/or default propagation route table, the route table cannot be deleted.
  - If **Default Route Association** is set to **Yes** on the basic information page of the route table, the route table is used as the default association route table.
  - Also, if **Default Route Propagation** is set to **Yes** on the basic information of the route table, the route table is used as the default propagation route table.

  To delete such a route table, change **Default Route Association** and **Default Route Propagation** settings. For details, see **Modifying an Enterprise Router**.
- A route table cannot be deleted if it contains an association or a propagation. You need to delete the association and propagation before deleting this route table.
  - For details about how to delete an association, see **Deleting an Association from a Route Table**.
  - For details about how to delete a propagation, see **Deleting a Propagation from a Route Table**.
- A route table can be deleted if it contains only static routes. Ensure that the routes are no longer required before deleting their route table.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 In the route table list, click next to the name of the target route table.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

A deleted route table cannot be recovered.

----End

7 Associations

7.1 Association Overview

Each attachment can be associated with one route table for:

- Packet forwarding: Packets from the attachment are forwarded through the routes specified in the associated route table.
- Route propagation: The routes in the associated route tables are automatically propagated to the route table of the attachment.

Figure 7-1 Associations

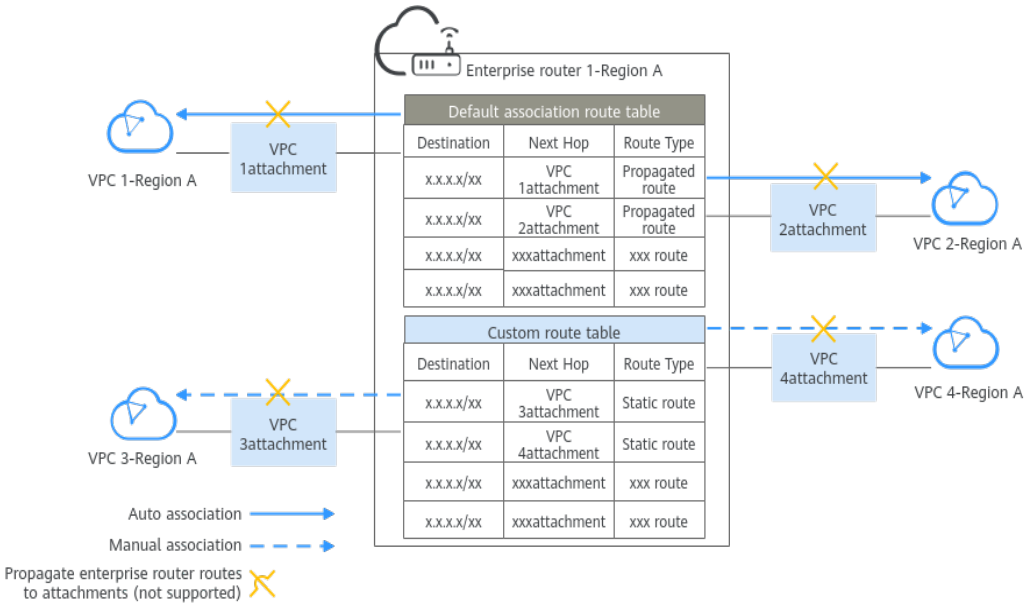


Table 7-1 Associations

Attachment Type	Route Learning	Way to Create Association	Description
VPC	Not supported	• Auto creation: If **Default Route Table Association** is enabled and the default association route table is specified, attachments are automatically associated with the default association route table. – If you want to enable this function when you create an enterprise router, refer to **Creating an Enterprise Router**. – If you want to enable this function after an enterprise router is created, refer to **Modifying an Enterprise Router**. • Manual creation: You can select a route table and create an association in it to associate an attachment with the route table. For details, see **Creating an Association for an Attachment in a Route Table**.	Each attachment can only be associated with one route table. Associations between attachments in **Association Overview** are described as follows: • Auto creation: Associations are automatically created to associate attachments, such as VPC 1 and VPC 2 attachments, with the default route table of the enterprise router. • Manual creation: You need to manually create associations in the custom route table of the enterprise router for attachments, such as VPC 3 and VPC 4 attachments.
CFW instance	Not supported		

7.2 Creating an Association for an Attachment in a Route Table

Scenarios

This section describes how to create an association in a route table of an enterprise router to associate a specified attachment with the route table.

Constraints

Each attachment can only be associated with one route table. Packets from the attachment will be forwarded based on the route table.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table where you want to create an association. On the **Associations** tab, click **Create Association**.

The **Create Association** dialog box is displayed.

Step 7 Configure the parameters based on **Table 7-2**.

Table 7-2 Parameters for creating an association

Parameter	Setting	Example Value
Attachment Type	Mandatory Select an attachment type. • **VPC**: A VPC is attached to the enterprise router. • **CFW instance**: A VPC border firewall is attached to the enterprise router. For more information, see **Attachment Overview**.	VPC
Attachment	Mandatory In the drop-down list, select the attachment to be associated with the route table.	er-attach-02

Step 8 Click **OK**.

The association list is displayed. You can view your association.

----End

7.3 Viewing Associations in a Route Table

Scenarios

This section describes how to view associations in the route table of an enterprise router. You can also view all the attachments associated with this route table.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table where you want to view its associations. On the **Associations** tab, view the associations.

All attachments associated with the route table are displayed in the list. You can view their settings such as the ID, status, and name of each attachment.

----End

7.4 Deleting an Association from a Route Table

Scenarios

This section describes how to delete an association from the route table of an enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table that you want to delete an association from. On the **Associations** tab, locate the association you want to delete and click **Delete** in the **Operation** column.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

A deleted association cannot be recovered.

----End

8 Propagations

8.1 Propagation Overview

You can create a propagation for each attachment to propagate routes to one or more route tables on an enterprise router.

If you do not want to create a propagation, you can manually add static routes for attachments to the route tables.

Figure 8-1 Propagated routes and static routes

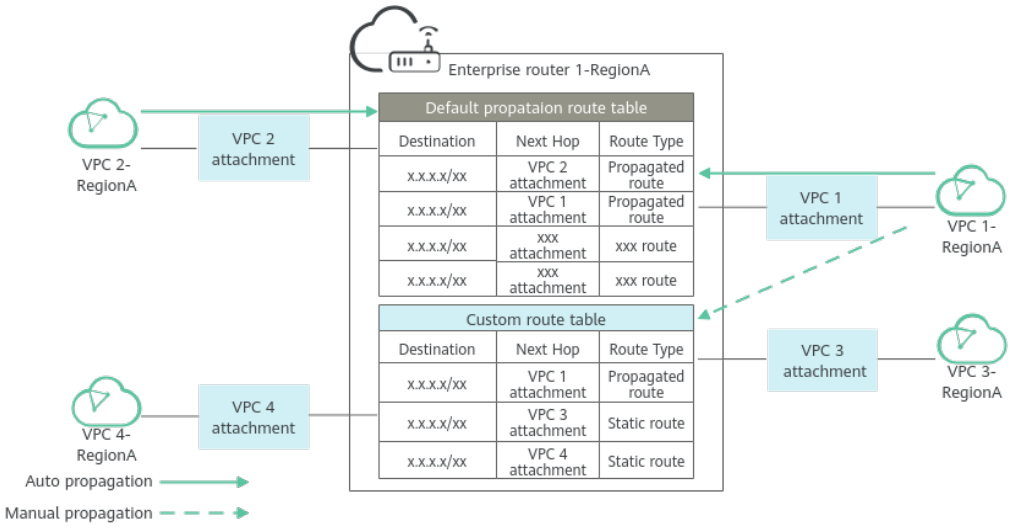


Table 8-1 Propagations

Attachment Type	Propagated Info	Way to Create Propagation	Description
VPC	VPC CIDR blocks	• Auto creation: If **Default Route Table Propagation** is enabled and the default propagation route table is specified, attachments automatically propagate routes to the default propagation route table. – If you want to enable this function when you create an enterprise router, refer to **Creating an Enterprise Router**. – If you want to enable this function after an enterprise router is created, refer to **Modifying an Enterprise Router**. • Manual creation: You can select a route table and create a propagation for an attachment in the route table. For details, see **Creating a Propagation for an Attachment in the Route Table**.	An attachment can be propagated to different route tables. You can create propagations for attachments in **Figure 8-1** as follows: • Auto creation: Propagations are automatically created for the attachments, such as VPC 1 and VPC 2 attachments, in the default propagation route table of the enterprise router. • Manual creation: You need to manually create propagations in the custom route table of the enterprise router for attachments, such as VPC 1 attachment. • No propagation: If you do not want to use propagated routes, you need to manually add static routes to the custom route table of the enterprise router for attachments, such as VPC 3 and VPC 4 attachments.
CFW instance	CIDR blocks of the VPCs protected by CFW		

8.2 Creating a Propagation for an Attachment in the Route Table

Scenarios

This section describes how to create a propagation in the route table of an enterprise router.

Constraints

You can create propagations for the same attachment in different route tables.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table where you want to create a propagation. On the **Propagations** tab, click **Create Propagation**.

The **Create Propagation** dialog box is displayed.

Step 7 Configure the parameters based on **Table 8-2**.

Table 8-2 Parameters for creating a propagation

Parameter	Setting	Example Value
Attachment Type	Mandatory Select an attachment type. • **VPC**: A VPC is attached to the enterprise router. • **CFW instance**: A VPC border firewall is attached to the enterprise router. For more information, see **Attachment Overview**.	VPC
Attachment	Mandatory In the drop-down list, select the attachment that will propagate routes to the route table.	er-attach-02

Step 8 Click **OK**.

The propagation list is displayed. You can view your propagation.

----End

8.3 Viewing a Propagation in a Route Table

Scenarios

This section describes how to view a propagation in the route table of an enterprise router.

Procedure

Step 1 Search for the target enterprise router by name.

Step 2 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 3 Click the route table where you want to view a propagation. On the **Propagations** tab, view your propagation.

All propagations associated with the route table are displayed in the list. You can view their settings such as the ID, status, and name of each propagation.

----End

8.4 Deleting a Propagation from a Route Table

Scenarios

This section describes how to delete a propagation from the route table of an enterprise router.

Constraints

Propagated routes are learned through propagation. Deleting a propagation will also delete the propagated routes.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table where you want to delete a propagation. On the **Propagations** tab, locate the propagation you want to delete and click **Delete** in the **Operation** column.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

A deleted propagation cannot be recovered.

----End

9 Routes

9.1 Route Overview

What Is a Route?

Routes are used to forward packets. A route contains information such as the destination, next hop, and route type.

You can create a propagation for attachments to automatically propagate routes to route tables or manually add static routes to route tables.

Figure 9-1 Propagated routes and static routes

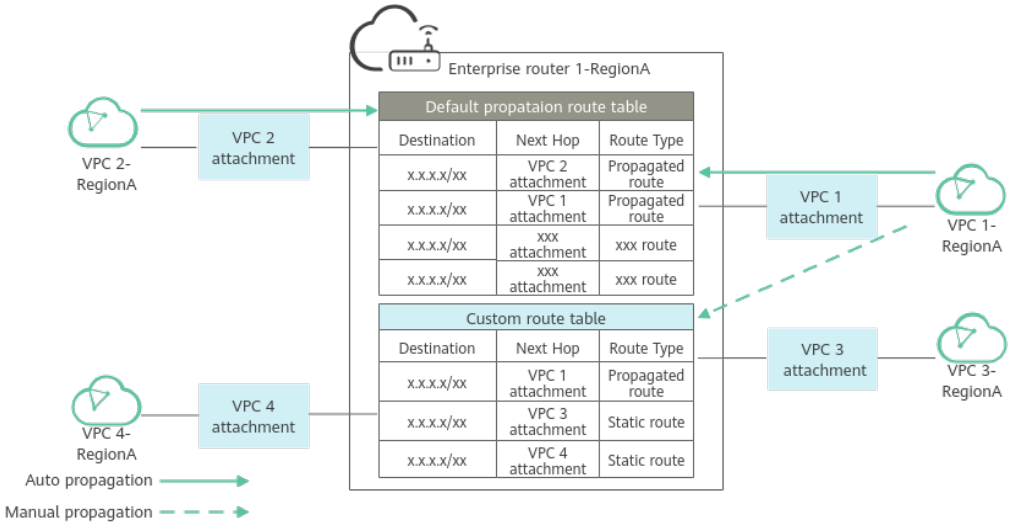


Table 9-1 Route types

Route Type	Description	How to Create	Description
Propagated routes	Propagated routes are routes that attachments propagate to the route tables of the enterprise router. They cannot be modified or deleted.	To create a propagation, see **Creating a Propagation for an Attachment in the Route Table**.	Routes are classified into propagated routes and static routes. The routes shown in **Figure 9-1** are described as follows: • Propagated routes are from: – Propagations automatically created in the default route table of the enterprise router for attachments, such as VPC 1 and VPC 2 attachments. – Propagations manually created in the custom route table of the enterprise router for attachments, such as VPC 1 attachment. • Static routes are manually added to the custom route table of the enterprise router for attachments, such as VPC 3 and VPC 4 attachments.
Static routes	Static routes are manually created and can be modified or deleted.	To create a route, see **Creating a Static Route**.	

Route Priority

If there are multiple routes with the same destination in a route table, the route priority is as follows:

Static route > Propagated route for **VPC** attachment = Propagated route for **CFW instance** attachment

NOTE

- Static routes are manually configured and the destination of each static route must be unique in a route table.
- Propagated routes are automatically learned by the system and may have the same destination in a route table.
- A static route and a propagated route may have the same destination in a route table.

9.2 Creating a Static Route

Scenarios

You can create static routes in a route table of an enterprise router.

Static routes are classified into common routes and blackhole routes. A blackhole route only has a destination and has no next hop. It drops all traffic sent to the specified destination.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table where you want to create a static route. On the **Routes** tab, click **Create Route**.

The **Create Route** dialog box is displayed.

Step 7 Configure the parameters based on **Table 9-2**.

Table 9-2 Parameter description

Parameter	Setting	Example Value
Destination	Mandatory Enter the IP address or CIDR block of the attachment. For example, if it is a VPC attachment, enter the CIDR block of the VPC or a subnet of the VPC.	192.168.2.0/24
Blackhole Route	Optional If **Blackhole Route** is enabled, you do not need to configure **Attachment Type** and **Next Hop** for the route. If the destination of a route is the same as, or is contained in, that of this blackhole route, all packets destined for the destination will be dropped.	-

Parameter	Setting	Example Value
Attachment Type	• If **Blackhole Route** is not enabled, you need to configure this parameter. • If **Blackhole Route** is enabled, you do not need to configure this parameter. Select an attachment type. • **VPC**: Create a static route for a VPC attachment. • **CFW instance**: Create a static route for a VPC border firewall that is attached to the enterprise router. For more information, see **Attachment Overview**.	VPC
Next Hop	• If **Blackhole Route** is not enabled, you need to configure this parameter. • If **Blackhole Route** is enabled, you do not need to configure this parameter. In the drop-down list, select the target attachment.	er-attach-01
Description	Optional Describe the route for easy identification.	-

Step 8 Click **OK**.

Wait for 2 to 3 seconds, and click  to refresh the route list. The created static route is displayed.

----End

9.3 Modifying a Static Route

Scenarios

This section describes how to modify static routes, including common routes and blackhole routes, in a route table of an enterprise router. For example, you can perform the following operations:

- Change a common route to a blackhole route.
- Change the attachment type and next hop of a common route.

Only static routes can be modified. Propagation routes cannot be modified.

Constraints

To change the destination of a static route, delete this static route and create another one with your desired destination.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table where you want to modify a route. On the **Routes** tab, locate the route and click **Modify** in the **Operation** column.

The **Modify Route** dialog box is displayed.

Step 7 Modify the route based on **Table 9-3**.

Table 9-3 Parameter description

Parameter	Setting	Example Value
Blackhole Route	Optional If **Blackhole Route** is enabled, you do not need to configure **Attachment Type** and **Next Hop** for the route. If the destination of a route is the same as, or is contained in, that of this blackhole route, all packets destined for the destination will be dropped.	-
Attachment Type	• If **Blackhole Route** is not enabled, you need to configure this parameter. • If **Blackhole Route** is enabled, you do not need to configure this parameter. Select an attachment type. • **VPC**: Create a static route for a VPC attachment. • **CFW instance**: Create a static route for a VPC border firewall that is attached to the enterprise router. For more information, see **Attachment Overview**.	VPC

Parameter	Setting	Example Value
Next Hop	• If **Blackhole Route** is not enabled, you need to configure this parameter. • If **Blackhole Route** is enabled, you do not need to configure this parameter. In the drop-down list, select the target attachment.	er-attach-01
Description	Optional Modify the description of the route.	-

Step 8 Click **OK**.

View the modified static route in the route list.

----End

9.4 Viewing Routes

Scenarios

View propagated routes and static routes in a route table of an enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table whose routes you want to view. On the **Routes** tab, view the routes.

Each route includes information such as the destination, next hop, attachment type, and route type.

----End

9.5 Deleting a Static Route

Scenarios

Delete a static route from a route table of an enterprise router.

Only static routes can be deleted. To delete a propagated route, you need to delete its propagation. The route will be deleted together with the propagation. For details, see **Deleting a Propagation from a Route Table**.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Route Tables** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Route Table**.
- Click the enterprise router name and click **Route Tables**.

Step 6 Click the route table where you want to delete a route. On the **Routes** tab, locate the route and click **Delete** in the **Operation** column.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

A deleted static route cannot be recovered.

Wait for 2 to 3 seconds, and click  to refresh the route list. The route does not exist in the list.

----End

10 Sharing

10.1 Sharing Overview

What Is Sharing?

Integration with Resource Access Manager (RAM) allows you to share enterprise routers in your accounts with other accounts so that these accounts can attach their network instances to your enterprise router for network connectivity. This allows you to configure and maintain resources of multiple accounts in a unified manner, improving resource management and control efficiency and reducing O&M costs.

- You are the owner of the enterprise router.
- Other accounts are the principals of the enterprise router.

After you share your enterprise router with other accounts, these principals can attach their network instances to your enterprise router, so that their network instances can access your enterprise router.

NOTE

After the owner shares the enterprise router in region A with the principals, they can only use the enterprise router in region A.

This allows VPCs in the same region but different accounts to be attached to the same enterprise router.

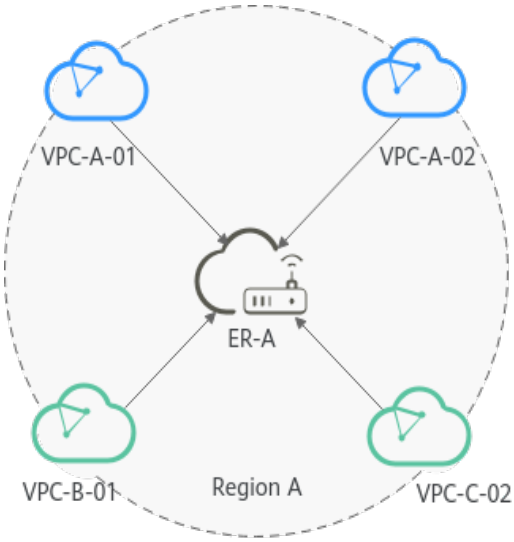
This example uses account A, account B, and account C to describe how you can build a network using one enterprise router. **Table 10-1** describes the resources of each account.

If account A shares enterprise router (ER-A) with account B and account C, the VPCs of accounts B and C can be attached to ER-A. **Figure 10-1** shows the networking.

Table 10-1 Accounts and their resources

Account	Enterprise Router	VPC
A	ER-A	VPC-A-01 VPC-A-02
B	ER-B	VPC-B-01
C	ER-C	VPC-C-01

Figure 10-1 Attaching VPCs in different accounts to the same enterprise router



Allowed Operations by the Owner and Principals

The owner can perform all operations but the principals can perform only some of the operations. **Table 10-2** lists the operations that other users can perform.

Table 10-2 Allowed operations by principals

Role	Allowed Operation	Description
Principals	**Viewing an Enterprise Router**	Principals can view: The name of the shared enterprise router followed by **Shared with me**.

Role	Allowed Operation	Description
	Adding attachments to an enterprise router **Creating a VPC Attachment**	Principals: • Can only create VPC attachments. • Can create attachments to the shared enterprise router only after the owner account accepts the attachment requests. If **Auto Accept Shared Attachments** is enabled, a request from a principal for creating an attachment will be automatically accepted. • Cannot add tags to their created attachments to the shared enterprise router. For details about the process for creating an attachment for an enterprise router in another account, see **Creating Attachments to a Shared Enterprise Router**.
	Viewing an Attachment	Principals: Cannot view the tags added to their attachments.
	Modifying the Basic Information of an Attachment	Principals can change the names of their attachments created for the shared enterprise router.
	Deleting a VPC Attachment	Principals can delete their attachments created for the shared enterprise router without the approval of the owner account.

NOTE

Principals cannot view the **Route Tables**, **Sharing**, **Flow Logs**, and **Tags** tabs of the enterprise router.

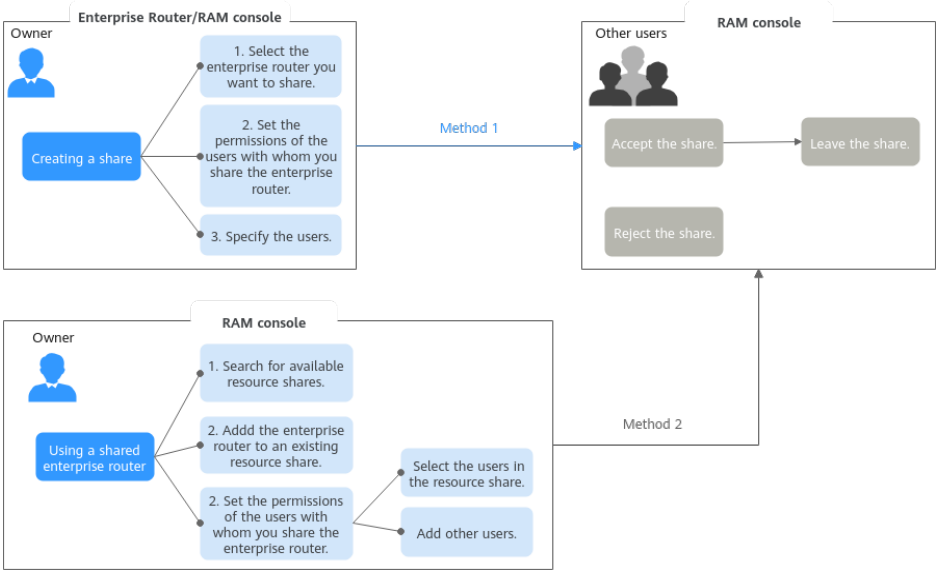
Sharing an Enterprise Router with Principals

As the owner, you can share your enterprise router with other accounts. These other accounts are the principals and can use your enterprise after they accept the sharing request. Enterprise Router works with RAM to allow you to share your enterprise router with other accounts and provides two methods for you to share an enterprise router:

- Method 1: Create a resource share, add the enterprise router to be shared, set the permissions of the principals who will use the shared enterprise router, and specify the users.
- Method 2: If you already have an available resource share, add the enterprise router to the share and set the permission of the users who will use the shared enterprise router. You can reuse the users in the resource share or add other users as required.

Figure 10-2 shows the process of sharing an enterprise router.

Figure 10-2 Sharing an enterprise router with principals



You can share an enterprise router on the RAM or Enterprise Router console. **Table 10-3** details the two methods of sharing an enterprise on the RAM console.

Table 10-3 Sharing an enterprise router with principals

Method	Description
Method 1	Creating a resource share: 1. The owner selects the enterprise router to be shared. On the **Sharing** tab, the owner can switch to the RAM console to create a resource share and share the enterprise router with the principals. Take the following steps to create a share: a. Select the enterprise router that you want to share with the principals. b. Set the permissions of the principals on the enterprise router to be shared. c. Specify the users who can use the shared enterprise router. 2. On the RAM console, the principals accept or reject the resource share. • If the principals accept the sharing invitation, they can use the enterprise router. If the principals do not want to use the shared enterprise router, they can leave the resource share. • If the principals reject the sharing invitation, the enterprise router will not be shared.

Method	Description
Method 2	Adding an enterprise router to a resource share: 1. The owner searches for the resource share on the RAM console. 2. The owner adds the enterprise router to the resource share, for example, the resource share created in 1. Take the following steps to modify a share: a. Select the enterprise router that you want to share with the principals. b. Set the permissions of the principals on the enterprise router to be shared. c. Reuse the principals in the resource share or add new principals. 3. On the RAM console, the principals accept or reject the resource share. • If the principals accept the sharing invitation, they can use the enterprise router. If the principals do not want to use the shared enterprise router, they can leave the resource share. • If the principals reject the sharing invitation, the enterprise router will not be shared.

Creating Attachments to a Shared Enterprise Router

As the owner, you can share your enterprise router with the principals. These principals can create attachments for your enterprise router.

- If **Auto Accept Shared Attachments** is not enabled on your enterprise router, you need to accept the attachment creation requests from the principals.

  Figure 10-3 Accepting or rejecting attachment creation requests

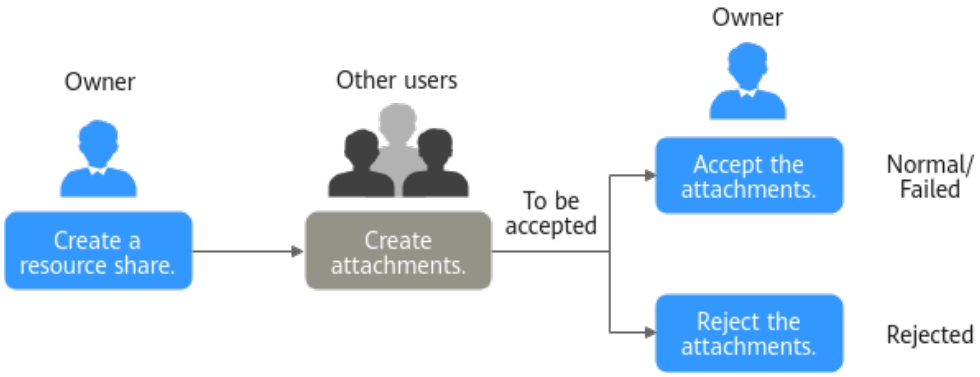


Table 10-4 Process description

No.	Step	Role	Description
1	Creating a Sharing	Owner	The owner creates a sharing to share an enterprise router with another user. This user can easily identify the shared enterprise router because its name is followed by **Shared with me**.
2	Creating a VPC Attachment	Principal	**Auto Accept Shared Attachments** is disabled on the enterprise router. After the principal creates an attachment to the shared enterprise router, the attachment will be in the **Pending acceptance** status and wait to be accepted by the owner.
3	• Accepting an Attachment Request • Rejecting an Attachment Request	Owner	• The owner accepts the attachment request. The attachment status changes from **Pending acceptance** to **Creating**. – When the attachment status changes to **Normal**, the attachment is successfully created. – When the attachment status changes to **Failed**, the attachment fails to be created. Contact customer service. After an attachment is created, you can perform Follow-up Procedure. • The owner can also reject the attachment request. If the owner rejects the request, the attachment status changes from **Pending acceptance** to **Rejected**, and the attachment fails to be created. If this happens, contact the owner.

- If **Auto Accept Shared Attachments** is enabled on an enterprise router, the principals' requests to create attachments to this enterprise router will be automatically accepted without the approval from the owner.

Figure 10-4 Attachment requests automatically accepted

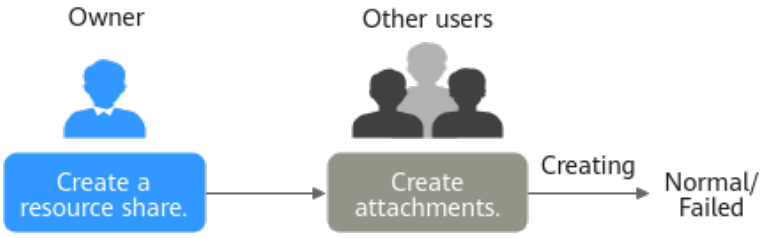


Table 10-5 Process description

No.	Step	Role	Description
1	Creating a Sharing	Owner	The owner creates a sharing to share an enterprise router with another user. This user can easily identify the shared enterprise router because its name is followed by **Shared with me**.
2	Creating a VPC Attachment	Principal	**Auto Accept Shared Attachments** is enabled on the enterprise router. The principal creates an attachment to the shared enterprise router. The attachment will be in the **Creating** state. • When the attachment status changes to **Normal**, the attachment is successfully created. • When the attachment status changes to **Failed**, the attachment fails to be created. Contact customer service.

10.2 Creating a Sharing

Scenarios

This section describes how to share your enterprise router with a principal. After accepting the enterprise router sharing, this principal can view your enterprise router with its name followed by **Shared with me**.

- Creating a Share by an Owner
- Viewing a Shared Enterprise Router by a Principal

Creating a Share by an Owner

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Sharing** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Sharing**.
- Click the enterprise router name and click **Sharing**.

Step 6 On the **Sharing** tab, click **Share Enterprise Router**.

The page for creating a resource share on the RAM console is displayed. Perform the operations as prompted.

To share an enterprise router, in the **Specify Resource Share Details** step, select **er:instance** from the **Available Resources** drop-down list box. All available enterprise routers are displayed.

Step 7 Go to the **Sharing** tab of the enterprise router by performing the operations in **Step 5**.

The enterprise router sharing is displayed.

NOTICE

After an owner shares an enterprise router with a principal, this principal needs to accept the sharing within a specified period before using the enterprise router.

----End

Viewing a Shared Enterprise Router by a Principal

The principal selects the region where the shared enterprise router is located. In the enterprise router list, the recipient can view the enterprise router shared by the owner, followed by **Shared with me**.

10.3 Viewing Sharing Details

Scenarios

View details about a sharing, for example, name and status of the sharing. Both enterprise router owners and the other users can refer to this section to view sharing details.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Sharing** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Sharing**.
- Click the enterprise router name and click **Sharing**.

Step 6 On the **Sharing** tab, view the name and status of the sharing.

- If you are the owner of a shared enterprise router, you can view the shared resources, their permissions, and the users with whom you share the enterprise router by the name of the sharing on the RAM console.
- If you are a user of a shared enterprise router, you can view the shared resources, their permissions, and all the other users who can use the enterprise router by the name of the sharing on the RAM console.

----End

10.4 Accepting an Attachment Request

Scenarios

This section describes how to accept a request from another user for creating an attachment to your enterprise router.

NOTE

- If **Auto Accept Shared Attachments** is disabled on your enterprise router, you can choose to accept the attachment request or not.
- If **Auto Accept Shared Attachments** is enabled on your enterprise router, the attachment will be automatically accepted without your approval.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 In the attachment list, locate the attachment you want to accept and click **Accept** in the **Operation** column.

The owner accepts the attachment request. The attachment status changes from **Pending acceptance** to **Creating**.

- When the attachment status changes to **Normal**, the attachment is successfully created.
- When the attachment status changes to **Failed**, the attachment fails to be created. Contact customer service.

After an attachment is created, you can perform **Follow-up Procedure**.

----End

10.5 Rejecting an Attachment Request

Scenarios

This section describes how to reject a request from another user for creating an attachment to your enterprise router.

NOTE

- If **Auto Accept Shared Attachments** is disabled on your enterprise router, you can choose to accept the attachment request or not.
- If **Auto Accept Shared Attachments** is enabled on your enterprise router, the attachment will be automatically accepted without your approval.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Attachments** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Attachment**.
- Click the enterprise router name and click **Attachments**.

Step 6 In the attachment list, locate the attachment you want to reject and click **Reject** in the **Operation** column.

The owner can also reject the attachment request. If the owner rejects the request, the attachment status changes from **Pending acceptance** to **Rejected**, and the attachment fails to be created. If this happens, contact the owner.

----End

10.6 Stopping a Sharing

Scenarios

If you stop sharing an enterprise router, the other users cannot use your enterprise router.

Constraints

If you stop sharing an enterprise router with other users, the attachments created by the other users will not be deleted, and the other users cannot perform any operations on these attachments.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Go to the **Sharing** tab using either of the following methods:

- In the upper right corner of the enterprise router, click **Manage Sharing**.
- Click the enterprise router name and click **Sharing**.

Step 6 Use either of the following methods to stop sharing an enterprise router:

- Method 1
  a. In the share list, locate the target share and click **Stop Sharing** in the **Operation** column.

     A confirmation dialog box is displayed.
  b. Confirm the information and click **OK**.

     Return to the **Sharing** tab. You can view that the resource share is in the **Sharing stopped** status.
- Method 2:
  a. In the share list, locate the target share and record its name.
  b. On the RAM console, locate the target share by name and delete the enterprise router or the users who are using the enterprise router.

----End

11 Flow Logs

11.1 Flow Log Overview

What Is a Flow Log?

Log Tank Service (LTS) can record flow logs for enterprise routers. A flow log records traffic of attachments on enterprise routers in real time. These logs allow you to monitor the network traffic of attachments and analyze network attacks, improving the O&M efficiency.

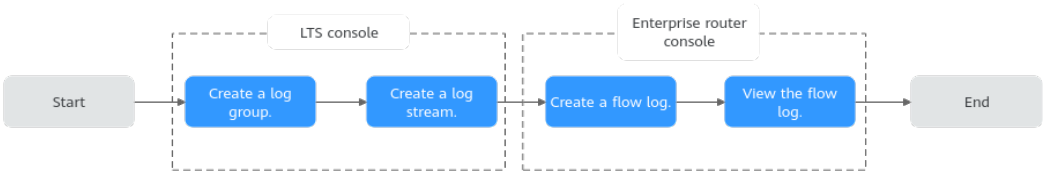
Flow logs can capture traffic of the following types of attachments:

- A VPC attachment indicates that a VPC is attached to an enterprise router. Flow logs can collect the traffic between the VPC and other attachments of the enterprise router.

Creation Process

Before creating a flow log for an enterprise router, you need to create a log group and a log stream on the LTS console.

Figure 11-1 Process of creating a flow log



Constraints

- By default, you can create a maximum of 20 flow logs.
- For TCP and UDP fragments, flow logs can record only the first fragment. Other fragments cannot be recorded because of incomplete packet header.
- Flow logs can only record traffic generated for network communications and do not capture traffic generated by the network. For example, BGP traffic used by an enterprise router to learn routes of attachments is not recorded.

11.2 Creating a Flow Log

Scenarios

This section describes how to create a flow log to record information about the traffic of enterprise router attachments.

Constraints

Only one flow log can be created for an attachment in the same log group and log stream.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Flow Logs**.

The flow log list is displayed.

Step 6 On the **Flow Logs** tab, click **Create Flow Log**.

The **Create Flow Log** dialog box is displayed.

Step 7 Configure the parameters based on **Table 11-1**.

Table 11-1 Parameters for creating a flow log

Parameter	Setting	Example Value
Name	Mandatory Enter a name for the flow log. The name: • Must contain 1 to 64 characters. • Can contain letters, digits, underscores (_), hyphens (-), and periods (.).	flowlog-ab
Resource Type	Mandatory Select the type of the resource whose traffic information is to be collected. The enterprise router flow log function can capture traffic of the following attachments: • VPC	VPC

Parameter	Setting	Example Value
Resource	Mandatory In the resource list, select the resource whose traffic information is to be collected.	vpc-ab
Log Group	Mandatory Select a log group. If there is no log group, click **Create Log Group**.	lts-group-ab
Log Stream	Mandatory Select a log stream. If there is no log stream, click **Create Log Stream**.	lts-topic-ab
Description	Optional Describe the flow log as required.	-

Step 8 Click **OK**.

The flow log list is displayed.

Step 9 View the flow log status.

If the flow status changes from **Creating** to **Enabled**, the flow log is successfully created.

----End

11.3 Viewing Details About a Flow Log

Scenarios

This section describes how to view details about a flow log, including the attachment ID, source/destination address, source/destination port, data packet size, and packet quantity.

Constraints

By default, flow logs are generated every 10 minutes. After creating a VPC flow log, you need to wait about 10 minutes before you can view the flow log record.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Flow Logs**.

The flow log list is displayed.

Step 6 Locate the target flow log and click **View Log Record** in the **Operation** column.

The **Log Management** page is displayed.

Step 7 In the log group list, locate the target log group and click the name of the target log stream under it.

The log stream details page is displayed.

Step 8 Enter key information in the search box to quickly find the flow log to be viewed.

Flow log format:

```
<version> <project_id> <resource_id> <instance_id> <srcaddr> <dstaddr> <srcport> <dstport> <protocol> <packets> <bytes> <start> <end> <direct>
```

Example 1:

```
1 0605768ad980d5762f8ac010b919754c 9e00a67c-b21e-435f-9da6-20004b8392e9 a5cbd16c-7d99-4000-8f14-526ec48298ce 1.1.1.1 192.168.1.199 0 0 1 229 22442 1664007127 1664007727 ingress
```

Example 2:

```
1 0605768ad980d5762f8ac010b919754c 9e00a67c-b21e-435f-9da6-20004b8392e9 a5cbd16c-7d99-4000-8f14-526ec48298ce 192.168.1.199 1.1.1.1 8 0 1 229 22442 1664007127 1664007727 egress
```

Table 11-2 describes the flow log parameters.

Table 11-2 Enterprise router flow log parameters

Parameter	Description	Example
version	Flow log version	1
project_id	Project ID	5f67944957444bd6bb4fe3b367de8f3d
resource_id	ID of the attachment that the traffic is generated for	10a163ee-6efa-4e4d-9937-ead59f308497
instance_id	Enterprise router ID	a5cbd16c-7d99-4000-8f14-526ec48298ce
srcaddr	Source IP address	192.168.0.154
dstaddr	Destination IP address	192.168.3.25
srcport	Source port	38929
dstport	Destination port	53
protocol	Internet Assigned Numbers Authority (IANA) protocol number of the traffic For more information, see **Internet Protocol Numbers**.	17

Parameter	Description	Example
packets	Number of data packets during the flow log collection	1
bytes	Size of the data packet during the flow log collection	96
start	The time when the collection started, in Unix seconds	1548752136
end	The time when the collection ended, in Unix seconds	1548752736
direct	Traffic direction • **ingress**: traffic going in to the attachment • **egress**: traffic going out of the attachment	egress

----End

11.4 Disabling a Flow Log

Scenarios

If flow logging is disabled, no flow logs will be collected in the next log collection period. Collected flow logs can still be viewed.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Flow Logs**.

The flow log list is displayed.

Step 6 Locate the target flow log and click **Disable** in the **Operation** column.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

The flow log list is displayed.

Step 8 View the flow log status.

If the flow status changes from **Modifying** to **Disabled**, the flow log is successfully disabled.

----End

11.5 Enabling a Flow Log

Scenarios

If flow logging is enabled, flow logs will be collected from the next log collection period.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Flow Logs**.

The flow log list is displayed.

Step 6 Locate the target flow log and click **Enable** in the **Operation** column.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

The flow log list is displayed.

Step 8 View the flow log status.

If the flow status changes from **Modifying** to **Enabled**, the flow log is successfully enabled.

----End

11.6 Deleting a Flow Log

Scenarios

This section describes how to delete a flow log.

Constraints

After a flow log is deleted, information captured in the flow log is still available.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Flow Logs**.

The flow log list is displayed.

Step 6 Locate the target flow log and click **Delete** in the **Operation** column.

A confirmation dialog box is displayed.

Step 7 Confirm the information and click **OK**.

The flow log list is displayed.

A deleted flow log cannot be recovered.

----End

12 Monitoring and Audit

12.1 Cloud Eye Monitoring

12.1.1 Supported Metrics

Function

This section describes monitoring metrics reported by Enterprise Router to Cloud Eye as well as their namespaces, metrics, and dimensions. You can use the Cloud Eye management console or APIs to obtain the monitoring metrics and alarms generated for Enterprise Router.

NOTE

Cloud Eye can monitor dimensions nested to a maximum depth of four levels (levels 0 to 3). 3 is the deepest level. For example, if the monitored dimension of a metric is **er_instance_id,er_attachment_id**, **er_instance_id** indicates level 0 and **er_attachment_id** indicates level 1.

Namespace

SYS.ER

Metrics

You can use Cloud Eye to monitor the network status of enterprise routers and their attachments.

- **Table 12-1**
- **Table 12-2**

Table 12-1 Monitoring metrics of an enterprise router

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
instance_bytes_in	Inbound Traffic	Network traffic going into the enterprise router	≥ 0	Byte	1024 (IEC)	er_instance_id	1 minute
instance_bytes_out	Outbound Traffic	Network traffic going out of the enterprise router	≥ 0	Byte	1024 (IEC)	er_instance_id	1 minute
instance_bits_rate_in	Inbound Bandwidth	Network traffic per second going into the enterprise router	≥ 0	bit/s	1000 (SI)	er_instance_id	1 minute
instance_bits_rate_out	Outbound Bandwidth	Network traffic per second going out of the enterprise router	≥ 0	bit/s	1000 (SI)	er_instance_id	1 minute
instance_packets_in	Inbound PPS	Packets per second going into the enterprise router	≥ 0	PPS	1000 (SI)	er_instance_id	1 minute
instance_packets_out	Outbound PPS	Packets per second going out of the enterprise router	≥ 0	PPS	1000 (SI)	er_instance_id	1 minute

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
instance_packets_drop_blackhole	Packets Dropped by Black Hole Route	The number of packets dropped because they matched a black hole route on the enterprise router	≥ 0	Count	N/A	er_instance_id	1 minute

Table 12-2 Monitoring metrics of an attachment

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
attachment_bytes_in	Inbound Traffic	Network traffic going into the attachment	≥ 0	Byte	1024 (IEC)	er_instance_id,er_attachment_id	1 minute
attachment_bytes_out	Outbound Traffic	Network traffic going out of the attachment	≥ 0	Byte	1024 (IEC)	er_instance_id,er_attachment_id	1 minute
attachment_bits_rate_in	Inbound Bandwidth	Network traffic per second going into the attachment	≥ 0	bit/s	1000 (SI)	er_instance_id,er_attachment_id	1 minute
attachment_bits_rate_out	Outbound Bandwidth	Network traffic per second going out of the attachment	≥ 0	bit/s	1000 (SI)	er_instance_id,er_attachment_id	1 minute
attachment_packets_in	Inbound PPS	Packets per second going into the attachment	≥ 0	PPS	1000 (SI)	er_instance_id,er_attachment_id	1 minute

ID	Name	Description	Value Range	Unit	Conversion Rule	Monitored Object (Dimension)	Monitoring Interval (Raw Data)
attachment_packets_out	Outbound PPS	Packets per second going out of the attachment	≥ 0	PPS	1000 (SI)	er_instance_id,er_attachment_id	1 minute
attachment_packets_drop_blackhole	Packets Dropped by Black Hole Route	The number of packets dropped because they matched a black hole route on the attachment	≥ 0	Count	N/A	er_instance_id,er_attachment_id	1 minute

If an object is in a hierarchical system, specify the monitored dimension in hierarchical form when you use an API to query the metrics of this object.

- To query a single metric by calling an API, the **mount_point** dimension is used as follows:
  ```
  dim.0=er_instance_id,d9f7b61f-e211-4bce-ac5f-2b76f3d0cf1d&dim.1=er_attachment_id,659614a0-e559-46c0-86ca-00c03c3d61b8
  ```
  d9f7b61f-e211-4bce-ac5f-2b76f3d0cf1d and **659614a0-e559-46c0-86ca-00c03c3d61b8** are the dimension values of **er_instance_id** and **er_attachment_id**, respectively. For details about how to obtain the values, see **Dimensions**.
- To query multiple metrics by calling an API, the **mount_point** dimension is used as follows:
  ```
  "dimensions": [
    {
      "name": "er_instance_id",
      "value": "d9f7b61f-e211-4bce-ac5f-2b76f3d0cf1d"
    },
    {
      "name": "er_attachment_id",
      "value": "659614a0-e559-46c0-86ca-00c03c3d61b8"
    }
  ]
  ```
  d9f7b61f-e211-4bce-ac5f-2b76f3d0cf1d and **659614a0-e559-46c0-86ca-00c03c3d61b8** are the dimension values of **er_instance_id** and **er_attachment_id**, respectively. For details about how to obtain the values, see **Dimensions**.

Dimensions

Key	Value
er_instance_id	Enterprise router ID
er_attachment_id	Attachment ID

12.1.2 Viewing Metrics

Scenarios

This section describes how to view monitoring metrics of enterprise routers and their attachments.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List**. Under **Management & Governance**, click **Cloud Eye**.

The **Cloud Eye** console is displayed.

Step 4 In the navigation pane on the left, choose **Cloud Service Monitoring** > **Enterprise Router**.

The enterprise router list is displayed.

Step 5 View the real-time monitoring metrics of enterprise routers and their attachments:

- View metrics of an enterprise router.
  a. In the enterprise router list, locate the enterprise router and click **View Metric** in the **Operation** column.

     The metrics are displayed.
  b. View metrics of the enterprise router.
- View metrics of an attachment.
  a. In the enterprise router list, locate the enterprise router, click  to view its attachments, locate the attachment, and click **View Metric** in the **Operation** column.

     The metrics are displayed.
  b. View metrics of the attachment.

----End

12.1.3 Creating Alarm Rules

Scenarios

This section describes how to create alarm rules and notifications for enterprise routers and their attachments.

You can create an alarm rule to configure the conditions that trigger an alarm and determine whether to send notifications when there is the alarm.

If you create an alarm rule for a metric, you can timely know metric exceptions and rectify the exceptions.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List**. Under **Management & Governance**, click **Cloud Eye**.

The **Cloud Eye** console is displayed.

Step 4 In the navigation pane on the left, choose **Cloud Service Monitoring** > **Enterprise Router**.

The enterprise router list is displayed.

Step 5 Create alarm rules for enterprise routers and their attachments:

- Enterprise router
  a. In the enterprise router list, locate the enterprise router and click **Create Alarm Rule** in the **Operation** column.
     The **Create Alarm Rule** page is displayed.
  b. On the **Create Alarm Rule** page, set parameters as prompted.
- Attachment
  a. In the enterprise router list, locate the enterprise router, click  to view its attachments, locate the attachment, and click **Create Alarm Rule** in the **Operation** column.
     The **Create Alarm Rule** page is displayed.
  b. On the **Create Alarm Rule** page, set parameters as prompted.

----End

12.2 CTS Auditing

12.2.1 Key Operations Recorded by CTS

An enterprise router is a central router that interconnects all of your VPCs and on-premises networks.

With CTS, you can record operations associated with your enterprise routers for future query, audit, and backtracking.

Table 12-3 Enterprise router operations recorded by CTS

Operation	Resource Type	Trace Name
Creating an enterprise router	erInstance	createInstance
Modifying an enterprise router	erInstance	updateInstance
Deleting an enterprise router	erInstance	deleteInstance
Querying the enterprise router list	erInstance	listEnterpriseRouters
Viewing an enterprise router	erInstance	showEnterpriseRouter
Creating a VPC attachment	erAttachment	createVpcAttachment
Modifying an attachment	erAttachment	updateAttachment
Modifying a VPC attachment	erAttachment	updateVpcAttachment
Deleting a VPC attachment	erAttachment	deleteVpcAttachment
Accepting an attachment request	erAttachment	acceptAttachment
Rejecting an attachment request	erAttachment	rejectAttachment
Viewing the attachment list	erAttachment	listAttachments
Viewing details about an attachment	erAttachment	showAttachment
Creating a route table	erRouteTable	createRouteTable
Modifying a route table	erRouteTable	updateRouteTable
Deleting a route table	erRouteTable	deleteRouteTable
Querying the route table list	erRouteTable	listRouteTables
Viewing a route table	erRouteTable	showRouteTable
Creating a static route	erStaticRoute	createStaticRoute

Operation	Resource Type	Trace Name
Batch creating static routes	erStaticRoute	batchCreateStaticRoute
Deleting a static route	erStaticRoute	deleteStaticRoute
Batch deleting static routes	erStaticRoute	batchDeleteStaticRoute
Modifying a static route	erStaticRoute	updateStaticRoute
Querying static routes	erStaticRoute	listStaticRoutes
Viewing a static route	erStaticRoute	showStaticRoute
Creating an association	erAssociation	createAssociation
Deleting an association	erAssociation	deleteAssociation
Querying associations in a route table	erAssociation	listAssociations
Creating a propagation	erPropagation	createPropagation
Deleting a propagation	erPropagation	deletePropagation
Querying a propagation in a route table	erPropagation	listPropagations
Querying the flow log list	erFlowLog	listFlowLogs
Viewing a flow log	erFlowLog	showFlowLog
Performing operations on enterprise router resource tags in batches	erTag	batchOperationErResourceTags

12.2.2 Viewing Traces

Scenarios

After CTS is enabled, it starts recording operations on cloud resources. You can view the operation records of the last seven days on the CTS console.

This section describes how to query or export the operation records of the last seven days on the CTS console.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List**. Under **Management and Deployment**, click **Cloud Trace Service**.

The **Cloud Trace Service** console is displayed.

Step 4 In the navigation pane on the left, choose **Trace List**.

The **Trace List** page is displayed.

Step 5 Specify filters as needed.

The following filters are available:

- **Trace Type**: Set it to **Management** or **Data**.
- **Trace Source**, **Resource Type**, and **Search By**
  - If you select **Trace name** for **Search By**, select a trace name.
  - If you select **Resource ID** for **Search By**, enter a resource ID.
  - If you select **Resource name** for **Search By**, enter a resource name.
- **Operator**: Select a specific operator (a user other than an account).
- **Trace Status**: Select **All trace statuses**, **Normal**, **Warning**, or **Incident**.
- Time range: Select any time range in the last seven days.

Step 6 Expand the trace for details.

Step 7 Click **View Trace**. A dialog box is displayed, in which the trace details are displayed.

For more information about CTS, see the *Cloud Trace Service User Guide*.

----End

13 Tags

13.1 Overview

What Is a Tag?

Tags are used to identify cloud resources for purposes of easy categorization and quick search. You can add tags to enterprise routers, attachments, and route tables using either of the methods:

- Add tags when you create an enterprise router, attachment, or route table.
- Add tags on the details page of an existing enterprise router, attachment, or route table. You can also edit or delete tags.

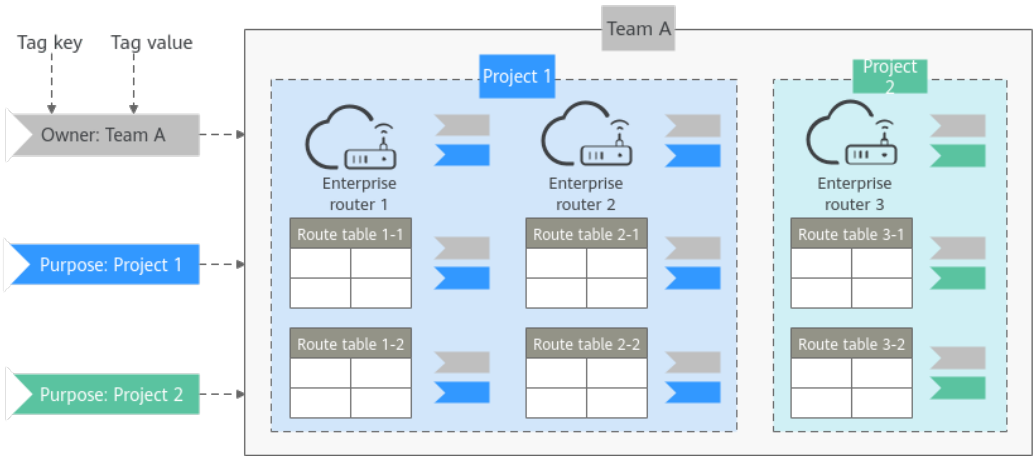
Basic Knowledge About Tags

Tags are used to identify cloud resources. When you have many cloud resources of the same type, you can use tags to classify cloud resources by dimension (for example, use, owner, or environment).

Figure 13-1 shows how tags work. In this example, you assign two tags to each cloud resource. Each tag contains a key and a value that you define. The key of one tag is **Owner**, and the key of another tag is **Usage**. Each tag has a value.

You can quickly search for specific cloud resources based on the tags added to them. For example, you can define a set of tags for cloud resources in an account to track the owner and usage of each cloud resource, making resource management easier.

Figure 13-1 Example tags added for Enterprise Router



Constraints on Using Tags

- Each tag consists of a tag key and a tag value. The rules for naming a tag key and a tag value are as follows:

  Tag key
  - Cannot be left blank.
  - Can contain a maximum of 36 characters.
  - Can consist of letters, digits, underscores (_), and hyphens (-).

  Tag value
  - Can be left blank.
  - Can contain a maximum of 43 characters.
  - Can consist of letters, digits, underscores (_), periods (.), and hyphens (-).
- Up to 20 tags can be added to a cloud resource.
- For each resource, each tag key must be unique, and each tag key can only have one tag value.

13.2 Adding a Tag

13.2.1 Adding a Tag to an Enterprise Router

Scenarios

Add a tag to an existing enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the name of the enterprise router.

The page about the enterprise router details is displayed.

Step 6 Click the **Tags** tab and then click **Edit Tag** in the upper left corner above the tag list.

The **Edit Tag** page is displayed.

Step 7 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.2.2 Adding a Tag to an Attachment

Scenarios

Add a tag to an existing attachment.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click the **Attachments** tab.

The attachment list is displayed.

Step 6 Locate the attachment that you want to add a tag to and click its name.

The page showing the attachment details is displayed.

Step 7 In the upper left corner of the tag list, click **Edit Tag**.

The **Edit Tag** page is displayed.

Step 8 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.2.3 Adding a Tag to a Route Table

Scenarios

Add a tag to an existing route table.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click the **Route Tables** tab.

The route table list is displayed.

Step 6 Click the target route table. On the **Tags** tab, click **Edit Tag**.

The **Edit Tag** page is displayed.

Step 7 Perform the following operations as required:

- Adding a tag: Click  , enter a tag key and value, and click **OK**.
- Modifying a tag: Click  next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.3 Editing a Tag

13.3.1 Editing an Enterprise Router Tag

Scenarios

Edit a tag added to an existing enterprise router.

Constraints

- Each tag consists of a tag key and a tag value. Only the tag value can be edited.
- To edit the tag key, delete it and add it again. For details, see **Deleting an Enterprise Router Tag** and **Adding a Tag to an Enterprise Router**.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the name of the enterprise router.

The page about the enterprise router details is displayed.

Step 6 Click the **Tags** tab and then click **Edit Tag** in the upper left corner above the tag list.

The **Edit Tag** page is displayed.

Step 7 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.3.2 Editing an Attachment Tag

Scenarios

Modify a tag added to an existing attachment.

Constraints

- Each tag consists of a tag key and a tag value. Only the tag value can be edited.
- To edit the tag key, delete it and add it again. For details, see **Deleting an Attachment Tag** and **Adding a Tag to an Enterprise Router**.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Attachments**.

The attachment list is displayed.

Step 6 Locate the attachment whose tag you want to edit and click its name.

The attachment details page is displayed.

Step 7 In the upper left corner of the tag list, click **Edit Tag**.

The **Edit Tag** page is displayed.

Step 8 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.3.3 Editing a Route Table Tag

Scenarios

Edit a tag added to an existing route table.

Constraints

- Each tag consists of a tag key and a tag value. Only the tag value can be edited.
- To edit the tag key, delete it and add it again. For details, see **Deleting a Route Table Tag** and **Adding a Tag to a Route Table**.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Route Tables**.

The route table list is displayed.

Step 6 Click the target route table. On the **Tags** tab, click **Edit Tag**.

The **Edit Tag** page is displayed.

Step 7 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.

- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.4 Searching for a Cloud Resource by Tag

13.4.1 Searching for an Enterprise Router by Tag

Scenarios

Search for an enterprise router using a tag added to that enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Click **Search by Tag**.

Step 5 Enter or select a tag key and a tag value.

- If you need to query a resource with multiple tags, click  to add multiple tags. A maximum of 10 tags can be added at a time.
- You can click  to delete the added tags one by one or click **Reset** to clear all of them.

Step 6 Click **Search**.

The resource with the tags is displayed in the list.

----End

13.4.2 Searching for an Attachment by Tag

Scenarios

Search for an attachment using a tag added to that attachment.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Attachments**.

The attachment list is displayed.

Step 6 In the search box, select a tag key and value and click **OK**.

The resource with the tag is displayed in the list.

----End

13.4.3 Searching for a Route Table by Tag

Scenarios

Search for a route table using a tag added to that enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Route Tables**.

The route table list is displayed.

Step 6 Click **Search by Tag**.

Step 7 Enter or select a tag key and a tag value.

- If you need to query a resource with multiple tags, click  to add multiple tags. A maximum of 10 tags can be added at a time.
- You can click  to delete the added tags one by one or click **Reset** to clear all of them.

Step 8 Click **Search**.

The resource with the tags is displayed in the list.

----End

13.5 Viewing a Tag

13.5.1 Viewing an Enterprise Router Tag

Scenarios

View a tag added to an enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Tags**.

The tag list is displayed.

Step 6 Locate the tag and view its details, including the tag key and tag value.

----End

13.5.2 Viewing an Attachment Tag

Scenarios

View a tag added to an attachment.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Attachments**.

The attachment list is displayed.

Step 6 Locate the attachment whose tag you want to view and click its name.

The attachment details page is displayed.

Step 7 Locate the tag and view its details, including the tag key and tag value.

----End

13.5.3 Viewing a Route Table Tag

Scenarios

View a tag added to a route table.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Route Tables**.

The route table list is displayed.

Step 6 Locate the tag and view its details, including the tag key and tag value.

----End

13.6 Deleting a Tag

13.6.1 Deleting an Enterprise Router Tag

Scenarios

Delete a tag added to an enterprise router.

Procedure

Step 1 Log in to the management console.

Step 2 Click  in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the name of the enterprise router.

The page about the enterprise router details is displayed.

Step 6 Click the **Tags** tab and then click **Edit Tag** in the upper left corner above the tag list.

The **Edit Tag** page is displayed.

Step 7 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.6.2 Deleting an Attachment Tag

Scenarios

Delete a tag added to an attachment.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Attachments**.

The attachment list is displayed.

Step 6 Locate the attachment whose tag you want to delete and click its name.

The attachment details page is displayed.

Step 7 In the upper left corner of the tag list, click **Edit Tag**.

The **Edit Tag** page is displayed.

Step 8 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

13.6.3 Deleting a Route Table Tag

Scenarios

Delete a tag added to a route table.

Procedure

Step 1 Log in to the management console.

Step 2 Click in the upper left corner and select the desired region and project.

Step 3 Click **Service List** and choose **Networking** > **Enterprise Router**.

The **Enterprise Router** page is displayed.

Step 4 Search for the target enterprise router by name.

Step 5 Click the enterprise router name and click **Route Tables**.

The route table list is displayed.

Step 6 Click the target route table. On the **Tags** tab, click **Edit Tag**.

The **Edit Tag** page is displayed.

Step 7 Perform the following operations as required:

- Adding a tag: Click + Add, enter a tag key and value, and click **OK**.
- Modifying a tag: Click × next to the target tag key or value, delete the original value, enter a new value, and click **OK**.
- Deleting a tag: Click **Delete** next to the target tag and click **OK**.

----End

14 Quotas

14.1 Overview

Quotas can limit the number or amount of resources available to users, for example, how many enterprise routers can be created, how many attachments can be created for each enterprise router, and how many routes can be added to each route table.

You can also request higher quotas if your existing quotas cannot meet your service requirements.

- **Viewing Quotas**: View used quotas and total quotas.
- **Increasing Quotas**: Request a quota increase.

14.2 Viewing Quotas

Scenarios

The following provides operations for you to view the quotas of enterprise routers and related resources in your account.

How Do I View My Quotas?

1. Log in to the management console.
2. Click  in the upper left corner and select the desired region and project.
3. In the upper right corner of the page, click  .
   The **Quotas** page is displayed.
4. View the used and total quota of each type of resources on the displayed page.
   If a quota cannot meet service requirements, apply for a higher quota.

14.3 Increasing Quotas

Scenarios

The following provides operations for you to increase the quotas of enterprise routers and related resources in your account.

How Do I Apply for a Higher Quota?

1. Log in to the management console.
2. In the upper right corner of the page, choose **Resources** > **My Quotas**.

   The **Quotas** page is displayed.
3. Click **Increase Quota** in the upper right corner of the page.
4. On the **Create Service Ticket** page, configure parameters as required.

   In the **Problem Description** area, fill in the content and reason for adjustment.
5. After all necessary parameters are configured, select **I have read and agree to the Ticket Service Protocol and Privacy Statement** and click **Submit**.

15 FAQ

15.1 Why Traffic Can't Be Forwarded from a VPC with a Route Destination of 0.0.0.0/0 to Its Enterprise Router?

Scenarios

Traffic cannot be forwarded from a VPC to its attached enterprise router if the destination of a route with an enterprise router as the next hop is set to 0.0.0.0/0 in the VPC route table and if:

- An ECS in the VPC has an EIP bound.

  NOTE

  Refer to solution 1.

- The VPC has ELB, NAT Gateway, VPCEP, or DCS deployed.

  NOTE

  Refer to solution 1 or solution 2.

  In solution 2, VPC traffic to the public network is routed through the enterprise router. Therefore, do not use this solution if the VPC uses an EIP for public network access.

Solutions

Select a solution based on your actual service scenario.

- Solution 1: Change the destination (0.0.0.0/0) of the default route to a specific IP address range, for example, 192.168.0.0/16.
- Solution 2: Add eight routes with specific IP address ranges as the destination to replace the default route (with a destination of 0.0.0.0/0).

Table 15-1 Route destinations and next hops

Destination	Next Hop
128.0.0.0/1	Enterprise router

Destination	Next Hop
64.0.0.0/2	Enterprise router
32.0.0.0/3	Enterprise router
16.0.0.0/4	Enterprise router
8.0.0.0/5	Enterprise router
4.0.0.0/6	Enterprise router
2.0.0.0/7	Enterprise router
1.0.0.0/8	Enterprise router

A Change History

Released On	Description
2025-11-25	This issue is the first official release.

