

CloudPond

User Guide

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1 CloudPond Console Overview

Table 1-1 lists the common functions provided by CloudPond.

Table 1-1 CloudPond console functions

Category	Function Operation	Helpful Link
Edge site	<p>Register one or more edge sites. Each edge site connects a deployment location (your premises) to a specific Huawei Cloud region.</p> <p>Register your premises where an edge site is to be deployed.</p> <p>You can also view, modify, and delete edge sites.</p>	Registering an Edge Site
		Managing Edge Sites
Network connectivity	<ul style="list-style-type: none"> Between an edge site and the on-premises system: The edge site connects to the on-premises system through a local gateway so that they can communicate with each other over a private network. Between an edge site and the cloud: The edge AZ where the edge site resides connects to the central AZ on the cloud through two edge gateways and shares the same VPC with the central AZ, so that the edge site can access other cloud services on the cloud over a private network. 	Configuring Local Network Connectivity
		Configuring and Testing Network Connectivity Between an Edge Site and the Cloud

Category	Function Operation	Helpful Link
Cloud resources	<p>In addition to core cloud services supported by CloudPond, you can deploy some additional cloud services at your edge site to leverage scalability of the cloud and run your workloads locally for data localization and low latency.</p> <p>You can switch to the console of any cloud services from the CloudPond console to provision and manage cloud resources, and use images cached for CloudPond to create ECSs.</p>	<p>Provisioning Cloud Resources to an Edge Site</p> <p>Managing Cloud Resources at an Edge Site</p> <p>Cached Images</p>
Monitoring	<ul style="list-style-type: none"> • View the usages of compute resources (vCPUs and memory) and storage resources used by each edge site on the console. • Use Cloud Eye or other methods to monitor cloud resources used at your edge site, just as in the central AZs of Huawei Cloud. 	<ul style="list-style-type: none"> • Viewing Resource Usage • Cloud Service Monitoring

2 Edge Site

2.1 Registering an Edge Site

Scenarios

An edge site is pool of compute and storage capacity deployed at your location. An edge site associates a specific Huawei Cloud region with your premises. Register your premises where an edge site is to be deployed. You can manage the resources used at the edge site and view the resource usages on the management console.

You can also view details about the edge site.

Prerequisites


- You have completed all required [preparations](#).
- You have confirmed that your location meets the [edge site deployment requirements](#). If your location fails to meet the requirements, you can [register an edge site](#) and [place an order](#) on the console, and then contact the Huawei Cloud technical support team for a solution.


Constraints and Limitations

By default, you can use a Huawei Cloud account to register a maximum of 10 edge sites. If you want to register more edge sites, increase the quota by referring to [Quota Adjustment](#).

Procedure

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the upper right corner of the displayed page, click **Register Edge Site**, or click **Register Edge Site** in the **Process Flow**.

Step 5 Specify the parameters based on [Table 2-1](#).

Table 2-1 Parameter description

Category	Parameter	Description
Site Information	Name	<p>Enter a name for the edge site based on the type of the workloads that will run at the edge site.</p> <p>The name can contain 2 to 64 characters, including only letters, digits, underscores (_), and hyphens (-).</p> <p>The name must be unique. You cannot change the name after the online subscription order is generated. If you need to change the name, delete the edge site and register another edge site with the name you want before the online subscription order is generated.</p>
	Description (Optional)	<p>Enter a description for you to identify the edge site.</p> <p>The description can contain a maximum of 255 characters and cannot contain angle brackets (< or >).</p>
	Location	<p>Select the area where the edge site is to be deployed.</p> <p>This address is used only to mark the approximate area where the edge site is to be deployed and helps you manage edge sites if you have more than one edge sites.</p>

Category	Parameter	Description
	Region	<p>Select a Huawei Cloud region. All regions where CloudPond is available are displayed here.</p> <p>Cloud services in different regions cannot communicate with each other over the private network. Select the nearest region to reduce network latency and improve the access speed. For details, see What Are the Relationships Between Edge Sites, Regions, and AZs?</p>
Equipment Room Conditions	Data Center Requirements	<p>Specify which condition your data center has met,</p> <p>including:</p> <ul style="list-style-type: none"> ● This is a modular data center. ● The data center has earned national or industry-level certifications. ● None
	Rack Installation	<p>Specify whether new racks can be added or devices need to be installed in existing racks,</p> <p>including:</p> <ul style="list-style-type: none"> ● New racks can be added to a rack group. ● Unknown

Category	Parameter	Description
	Available Space	Specify whether there is room for new racks, including: <ul style="list-style-type: none"> • There is room for more than three racks. • There is not room for more than three racks. • There is no space available.
	Agreement	Read and agree to the <i>Huawei Cloud CloudPond Disclaimer</i> .

Step 6 Click **Submit**.

A message is displayed, indicating that the edge site is successfully registered.

----End

Follow-up Operations

- Order a compute and storage capacity for the edge site based on your requirements. For details, see [Placing an Order](#).
- View the status of the edge site.
- Before the [edge site deployment](#) is complete, the edge site remains in the **Pending deployment** or **Deploying** status. After the deployment is complete, the edge site status changes to **Available**. If an edge site is faulty, the edge site status changes to **Unavailable**.

2.2 Managing Edge Sites

Viewing Basic Information About an Edge Site

View basic information about a registered edge site on the **Edge Sites** page.

Table 2-2 Edge site information

Field	Description
Name	Name of the edge site you entered during registration.

Field	Description
Status	Status of the edge site. There are four statuses: <ul style="list-style-type: none">● Pending deployment: Pre-integrated racks have not been deployed at the location you have registered.● Available: Pre-integrated racks have been deployed at the location you have registered. You can provision cloud resources to the edge site.● Unavailable: A fault occurs when the edge site is running. Contact the Huawei Cloud O&M team to locate and rectify the fault.● Deploying: Pre-integrated racks have being deployed at the location you have registered. After the deployment is complete, the status changes to Available.
Region	Name of the region that the edge site is associated with. It is the region you selected when registering the edge site.
Location	Name of the location where the edge site is deployed.
vCPU Usage	vCPU, memory, and storage resource usages of the edge site. For details, see Cloud Resource Usages . <ul style="list-style-type: none">● If the status of the edge site is Pending deployment, Deploying, Unavailable, or Delivery in progress, -- is displayed.● When the resource usage is less than 50%, the bar is green. When the resource usage is greater than or equal to 50% and less than 80%, the bar is orange. When the resource usage is greater than or equal to 80%, the bar is red. When the progress bar is red, apply for Capacity Expansion or delete unnecessary resources in a timely manner.
Memory Usage	
Storage Resource Usage	
Operation	You can place an order on or delete an edge site. NOTE You can delete an edge site only when it is in the Pending deployment status. An edge site on which an order has been placed cannot be deleted.


Viewing More Information About an Edge Site

Click the name of an edge site to go to the details page and view more information.

- When the edge site status is **Available**, pre-integrated racks have been deployed at the location you registered and the edge site is running properly. You can view its basic information, available cloud services, and cloud resource usages.

- When the edge site status is **Pending deployment**, **Unavailable**, or **Deploying**, pre-integrated racks have not been deployed at the location you registered or the edge site is faulty. You can view only its basic information.

Category	Parameter	Description
Basic Information	Name	Name of the edge site you entered during registration.
	Status	<p>Status of the edge site. There are four statuses:</p> <ul style="list-style-type: none"> Pending deployment: Pre-integrated racks have not been deployed at the location you have registered. Available: Pre-integrated racks have been deployed at the location you have registered. In this state, you can provision cloud resources to the edge site. Unavailable: A fault occurs when the edge site is running. Contact the Huawei Cloud O&M team to locate and rectify the fault. Deploying: Pre-integrated racks have been deployed at the location you have registered. After the deployment is complete, the status changes to Available.
	Location	Name of the location where the edge site is deployed.
	Region	Name of the region that the edge site is associated with. It is the region you selected when registering the edge site.
	ID	After the edge site is registered, the system automatically generates a default ID. The ID is globally unique and allows operations on CloudPond resources through APIs.
	AZ ID	<p>ID of the edge AZ associated with the edge site. For details, see What Are the Relationships Between Edge Sites, Regions, and AZs?</p> <p>This ID makes cloud resource provisioning easier.</p>
	Registered	Time when the edge site was registered.

Category	Parameter	Description
	Description	<p>Supplementary information about the edge you entered when registering the edge site.</p> <p>Click  to modify the description.</p>
Resource Overview	Cloud server resource usage and EVS disk usage	<ul style="list-style-type: none"> Cloud server resource usage: vCPU usage Ultra-high I/O EVS disk usage: storage resource usage in GiB <p>When the resource usage is less than 50%, the bar is purple. When the resource usage is greater than or equal to 50% and less than 80%, the bar is orange. When the resource usage is greater than or equal to 80%, the bar is red.</p> <p>When the progress bar is red, apply for capacity expansion or delete unnecessary resources in a timely manner.</p>
Available Cloud Server Resources	<ul style="list-style-type: none"> General computing-plus (S series) resource pool General computing-plus (C series) resource pool Memory-optimized (M series) resource pool 	<ul style="list-style-type: none"> If standby cloud servers have been configured for a resource pool, the required number of vCPUs will be reserved. If no standby cloud servers are configured for a resource pool, exercise caution when planning resources. Submit a service ticket if you need any help.
Available Cloud Services	Core Cloud Services	<p>Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Virtual Private Cloud (VPC), and Elastic IP</p> <p>You can click Create or Manage to switch to the console of each cloud service. For more details, see Provisioning Cloud Resources.</p>

Modifying an Edge Site

You can click the edge site name and modify only its name and description on the **Basic Information** page no matter whether the edge site is associated with a location.

Other information cannot be modified.

Deleting an Edge Site

- If the edge site is in the **Pending deployment** status and does not have any order, click **Delete** in the **Operation** column.
- If the edge site status is **Deployed**, contact the Huawei Cloud O&M team.

Deleted edge sites cannot be recovered.

3 Network Connectivity

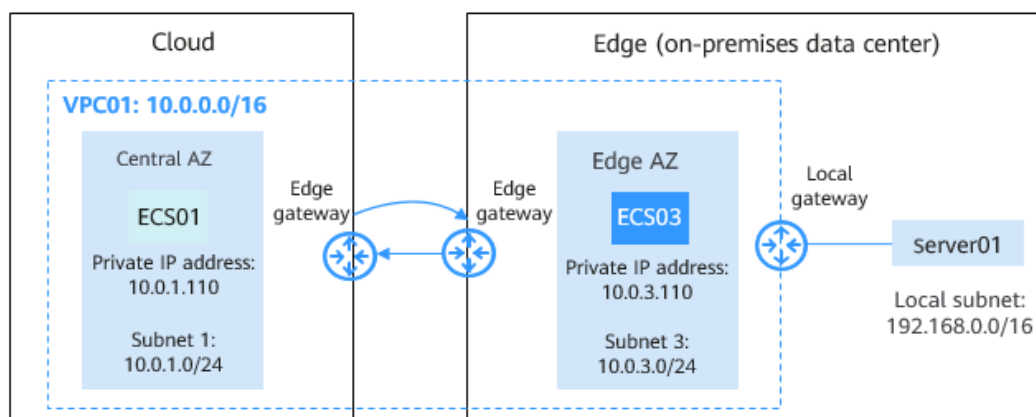
3.1 Overview

With a distributed network, CloudPond establishes network connectivity between the edge and the cloud.

- Between the edge and the cloud: The edge AZ where an edge site resides connects to the central AZ on the cloud through two edge gateways and shares the same VPC with the central AZ, so that the edge site can access other cloud services on the cloud over a private network.
- Between an edge and the on-premises system: The edge site connects to the on-premises system through a local gateway so that they can communicate with each other over a private network.

See [Networking Requirements](#) for details. [Figure 3-1](#) shows the CloudPond network connectivity.

Figure 3-1 CloudPond network connectivity



The following describes how you can configure and verify network connectivity:

- [Configuring Local Network Connectivity](#)
- [Configuring and Testing Network Connectivity Between an Edge Site and the Cloud](#)

3.2 Configuring Local Network Connectivity

Scenarios

Use a local gateway to connect the edge site to the on-premises system so that they can communicate with each other over a private network.

To establish network connectivity between the edge site and the on-premises system, you need to associate a VPC with the local gateway route table and add routes to the on-premises network in the route table. Test network connectivity by checking whether ECSs at the edge site can communicate with on-premises servers.


For the overall networking plan and requirements, see [Overview](#) and [Networking Requirements](#).


Prerequisites

The edge site is in the **Available** state.

Configuring Routes Between the Edge Site and the On-premises System

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, choose **Edge Sites**.


Step 5 Click the name of the edge site for which you want to create a VPC.

Step 6 In the **Available Cloud Services** area, locate **Virtual Private Cloud** and click **Create**.

Step 7 On the **Create VPC** page, configure the parameters.

- Select **Edge** for **AZ** when you create a subnet.
- For details, see [Creating a VPC](#).

Step 8 Confirm the configuration and click **Create Now**.

Step 9 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 10 In the left navigation pane, choose **Local Gateways**.

Step 11 Locate the local gateway and click **Manage Route Table** in the **Operation** column.

Step 12 On the **Associated VPCs** tab page, click **Associate VPC**.

Step 13 In the **Associate VPC** dialog box, select the VPC that you just created.

Step 14 Click **OK**.

Step 15 On the **Routes** tab page, click **Add Route**.

Step 16 Configure the parameters based on [Table 3-1](#).

Table 3-1 Parameter description

Parameter	Description	Example Value
IP Address Version	The value is fixed at IPv4 . IPv6 addresses are not supported.	-
Next Hop Type	Type of the next-hop resource. The value can be VPC or Local network . To enable network communications between an edge site and an on-premises system, you need to configure two routes. Select a VPC as the next hop for one route and the on-premises network as the next hop for the other route.	-
Next Hop	Select the next hop. <ul style="list-style-type: none"> If Next Hop Type is set to VPC, select the VPC to be associated with the local gateway route table. If you set the Next Hop Type to Local network, select the local gateway used by the on-premises network. 	-
Destination	Enter the destinations. <ul style="list-style-type: none"> If you set Next Hop Type to VPC, enter the CIDR block of the VPC. You can set this parameter to the CIDR block of the subnet in the edge AZ or the CIDR block of the VPC. If you set it to the CIDR block of the VPC, the edge site connects to the on-premises network and the cloud so that the on-premises network can communicate with the cloud over a private network. If Next Hop Type is set to Local network, enter the CIDR block used by your on-premises network. <p>The CIDR block used by your on-premises network cannot conflict with the VPC's CIDR block.</p>	VPC: 10.0.3.0/24 or 10.0.0.0/16 On-premises network: 192.168.0.0/16

Step 17 Click **OK**.

----End

Testing Local Network Connectivity

In the following steps, a Windows ECS is used to test network connectivity.

- Step 1** Create an ECS named **ECS03** in the edge AZ and place it in **VPC01** (CIDR block: 10.0.3.0/24).
- Select the same edge AZ you selected when you created the VPC. Configure other parameters as prompted.
For details, see [Purchasing an ECS with Customized Configurations](#).
 - Add inbound rules for the security group containing **ECS03** to allow ICMP packets. By default, ICMP packets are allowed in the outbound direction. For details, see [Security Group Configuration Examples](#).
- Step 2** Locate **ECS03** and record its private IP address (for example, 10.0.3.110).
- Step 3** Log in to the on-premises server **Server01** and ping **ECS03**.
- ```
ping 10.0.3.110
```
- Step 4** Check the command output. If the ECS can be pinged, the network connectivity has been established. If the ECS cannot be pinged, locate the cause and contact the Huawei Cloud O&M team.
- End

## Testing Network Connectivity Between the On-Premises System and the Central AZ

If you have configured a route between the central AZ and your on-premises system (you have set **Destination** to the CIDR block of the VPC), or if you have added a route for the subnet of the on-premises network, your on-premises system can access cloud services in the central AZ through the VPC.

In the following steps, a Windows ECS is used to test network connectivity.

- Step 1** Create an ECS named **ECS01** in the central AZ and place it in **VPC01** (CIDR block: 10.0.0.0/16).
- Select **General** for **AZ**.  
For details, see [Purchasing an ECS with Customized Configurations](#).
  - Add inbound rules for the security group containing **ECS01** to allow ICMP packets. By default, ICMP packets are allowed in the outbound direction. For details, see [Security Group Configuration Examples](#).
- Step 2** Locate **ECS01** and record its private IP address (for example, 10.0.1.110).
- Step 3** Log in to the on-premises server **Server01** and ping **ECS01**.
- ```
ping 10.0.1.110
```
- Step 4** Check the command output. If the ECS can be pinged, network connectivity has been established. If the ECS cannot be pinged, locate the cause and contact the Huawei Cloud O&M team.
- End

Related Operations

- [Testing Network Connectivity Between an Edge Site and the Central AZ](#)
- [Testing Network Connectivity Between an Edge Site and the Central AZ](#)
- [Managing Local Gateway Route Tables](#)

3.3 Configuring and Testing Network Connectivity Between an Edge Site and the Cloud

Scenarios

The edge AZ where an edge site resides connects to the central AZ on the cloud through two edge gateways and shares the same VPC with the central AZ, so that the edge site can access other cloud services on the cloud over a private network.

During the deployment of the edge site ([hardware and software installation](#)), the Huawei Cloud technical support team will connect the edge site to the central AZ in the associated Huawei Cloud region. You can create a VPC and two subnets on the VPC console, with one subnet in the central AZ and the other in the edge AZ. Then, test network connectivity by checking whether ECSs in the central AZ can communicate with ECSs in the edge AZ.


For the overall networking plan and requirements, see [Overview](#) and [Networking Requirements](#).


Prerequisites

The edge site is in the **Available** state.

Creating a VPC

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, choose **Edge Sites**.

Step 5 Click the name of the edge site for which you want to create a VPC.

Step 6 In the **Available Cloud Services** area, locate **Virtual Private Cloud** and click **Create**.

Step 7 On the **Create VPC** page, configure the parameters.

- Select **Edge** for the subnet.
- For details, see [Creating a VPC](#).

Step 8 Confirm the configuration and click **Create Now**.

----End

Testing Network Connectivity

For the following steps, Windows ECSs are used to test the network connectivity.

Step 1 Create an ECS named **ECS01** in the central AZ, place it in **VPC01**, and select the default subnet (CIDR block: 10.0.1.0/24).

Select **Central AZ**. For details, see [Purchasing an ECS with Customized Configurations](#).

Step 2 Locate **ECS01** and record its private IP address (for example, 10.0.1.110).

Step 3 Create an ECS named **ECS03** in the edge AZ and place it in **VPC01** (CIDR block: 10.0.3.0/24).

Select **Edge AZ**. Configure other parameters as prompted.

Step 4 Locate **ECS03** and record its private IP address (for example, 10.0.3.110).

Step 5 (Optional) If **ECS01** and **ECS03** are not in the same security group, add an inbound rule for each security group to allow access from each other.

For details about how to add security group rules, see [Enabling ECSs in Different Security Groups to Communicate with Each Other](#).

Step 6 Log in to **ECS01** and ping **ECS03**.

```
ping 10.0.3.110
```

Check the command output. If the ECS can be pinged, the network connectivity has been established. If the ECS cannot be pinged, locate the cause and contact the Huawei Cloud O&M team.

----End

3.4 Managing Local Gateway Route Tables

Viewing a Local Gateway and Its Route Table

After [hardware and software installation](#) is complete, you can view the local gateway and local gateway route table of the edge site on the CloudPond console.

Viewing a Local Gateway

Log in to the CloudPond console. In the left navigation pane, choose **Local Gateways**. Locate the local gateway and view its details. The local gateway name and ID, edge site name and ID, and AZ are generated by the system.

Each edge site can have only one local gateway.

Viewing a Local Gateway Route Table

Log in to the CloudPond console. In the left navigation pane, choose **Local Gateways**. Locate the local gateway whose route table you want to view and click

Manage Route Table in the **Operation** column. The name and ID of the route table are generated by the system.

Each local gateway can have only one route table.

Disassociating a VPC from a Local Gateway Route Table

Disassociate a VPC from a local gateway route table if you no longer need the VPC.

Log in to the CloudPond console. In the left navigation pane, choose **Local Gateways**. Locate the local gateway whose route table you want to manage and click **Manage Route Table** in the **Operation** column. On the **Associated VPCs** tab page, locate the VPC you want to disassociate from the route table, and click **Disassociate** in the **Operation** column.

Disassociating the VPC may interrupt services. Exercise caution when performing this operation.

Deleting Routes from a Local Gateway Route Table

Delete routes that are no longer needed from the local gateway route table.

Log in to the CloudPond console. In the left navigation pane, choose **Local Gateways**. Locate the local gateway whose route table you want to manage and click **Manage Route Table** in the **Operation** column. On the **Routes** tab page, locate the route you want to delete from the route table, and click **Delete** in the **Operation** column.

NOTE

Contact Huawei Cloud O&M team to delete the CoIP.

Deleting routes may interrupt services. Exercise caution when performing this operation.

4 Cloud Resources

4.1 Cloud Resource Usages

CloudPond allows you to view the usage of compute resources (vCPUs and memory) and storage resources used at your edge site to help you make full use of cloud resources.

Table 4-1 Cloud resource usages

Metric	Meaning	Value Range	Monitored Object
vCPU usage	Displays the ratio of the vCPUs of all flavors used by the edge site to the total purchased vCPUs. Unit: percent (%)	0–100%	Edge site
Memory usage	Displays the ratio of the memory of all flavors used by the edge site to the total purchased memory. Unit: percent (%)	0–100%	Edge site
Storage resource usage	Displays the ratio of the storage resources used by the edge site to the total purchased storage resources. Unit: percent (%)	0–100%	Edge site

4.2 Viewing Cloud Resource Usages


Scenarios


View the usages of compute resources (vCPUs and memory) and storage resources used at the edge site on the CloudPond console after you [provision cloud services](#).

See [Cloud Resource Usage Metrics](#) for more details about the metrics.

Procedure

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, choose **Edge Sites**.

Step 5 View the vCPU, memory, and storage resource usages.

- If the status of the edge site is **Pending deployment**, **Deploying**, or **Unavailable**, -- is displayed.
- When the resource usage is less than 50%, the bar is green. When the resource usage is greater than or equal to 50% and less than 80%, the bar is orange. When the resource usage is greater than or equal to 80%, the bar is red.

When the progress bar is red, apply for [capacity expansion](#) or delete unnecessary resources in a timely manner.

Step 6 Click the edge site name and view resource usage details.

You can view the following information in the **Resource** and **Available Cloud Server Resources** area:

- Quantity and usage of each resource
- Computing resource types and the quantity and usage of each type of resources

----End

4.3 Managing Cloud Resources Provisioned to an Edge Site

Scenarios

In addition to basic cloud services supported by CloudPond, you can deploy some advanced cloud services at your edge site to leverage the scalability of the cloud and run your workloads locally for data localization and low latency.

- Core cloud services include ECS, EVS, VPC, and EIP. These services allow you to use compute and storage resources on premises.
- You can also deploy applications from the KooGallery on the edge site to seamlessly extend the Huawei Cloud ecosystem to the edge (coming soon).

In addition to core and additional cloud services, CloudPond also supports a variety of management, monitoring, security, and migration services. For details, see [CloudPond and Other Services](#).

You can go to the console of each core or additional cloud service from the CloudPond console to provision cloud resources to the edge site.


Before you provision cloud resources to an edge site, learn the [constraints and limitations](#) and the product documentation of each cloud service.


Prerequisites

- The edge site is in the **Available** state.
- You have provided the Huawei Cloud O&M team with the required carrier's line information (public IP addresses and bandwidth) if you want to use and manage your public IP addresses used at the edge site on the EIP console.

Procedure

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, click **Edge Sites**.

Step 5 Click the name of the edge site for which you want to provision resources.

Step 6 In the **Available Cloud Services** area, click **Create** of the resource to be provisioned to the edge site.

Step 7 On the resource creation page of the cloud service console, set the parameters as prompted.

Type	Service Name	Parameter Settings	Reference
Core cloud services	ECS	Select Edge AZ for AZ.	ECS Quick Start
	EVS	Configure other parameters as required. Pay attention to the constraints and limitations on cloud services supported by CloudPond.	EVS Quick Start
	VPC		VPC User Guide
	EIP	Select Edge path for EIP Type and then select the carrier line required by the edge site. Configure other parameters as required. Pay attention to the constraints and limitations on cloud services supported by CloudPond.	EIP Quick Start

Step 8 Confirm the configuration and complete the creation.

----End

Follow-up Operations

After the resources are provisioned, you can perform the following operations:

1. On the console of each cloud service, [manage the cloud resources provisioned to the edge site](#).
2. Use Cloud Eye or other methods to [monitor cloud services](#).
3. [View the edge site resource usage](#) on the CloudPond console.

4.3.1 Creating an ECS at an edge site

This section describes how to create an ECS on the CloudPond management console.

Basic Settings

1. Select a region.
The default region for CloudPond is the region where the edge site is located. The region cannot be changed.
2. Select a billing mode.
Currently, only pay-per-use is supported.
3. Select an AZ.
The default AZ for CloudPond is an edge AZ. The AZ cannot be changed.
4. Select a CPU architecture.
 - **x86**: The X86-based CPU architecture uses Complex Instruction Set Computing (CISC). Each instruction can be used to execute low-level

hardware operations, and the length of each instruction is different. Therefore, the number of instructions is large and they are complex. The execution of such an instruction is complex and time-consuming.

- **Kunpeng:** The Kunpeng-based CPU architecture uses Reduced Instruction Set Computing (RISC). RISC is a microprocessor that executes fewer types of computer instructions but at a higher speed than CISC. RISC simplifies the computer architecture and improves the running speed. Compared with the x86-based CPU architecture, the Kunpeng-based CPU architecture has a more balanced performance and power consumption ratio. Kunpeng features high density, low power consumption, high cost-effectiveness.

5. Select a flavor.

The cloud service platform provides various ECSs for you to select based on application scenarios. You can choose from existing ECS types and flavors in the list. Alternatively, you can enter a flavor or specify vCPUs and memory size to search for the flavor suited to your needs.

NOTE

- When purchasing an ECS, sold-out vCPU and memory resources cannot be selected. You can select **Hide sold-out specifications** to hide specifications that have been sold out.

6. Select an image.

- Public images

A public image is a standard, widely used image. It contains an OS and preinstalled public applications and is available to all users. If a public image does not contain the application environments or software you need, you can use the public image to create a cloud server and then deploy required software as needed.

- Private images

A private image is an image available only to the user who created it. A private image contains an OS, preinstalled public applications, and a user's private applications. When you use a private image to create an ECS, you need much less time to configure the ECS.

For instructions about how to create a private image, see [Creating a Private Image](#).

- Shared images

A shared image is a private image shared by another user.

- Marketplace images

A Marketplace image is a third-party image that has an OS, application environment, and software preinstalled. You can use marketplace images to deploy websites and application development environments with a few clicks. No additional configuration is required.

If you use a Marketplace image, after you click **Marketplace image**, the system displays Marketplace images for you to choose from. For example, if the image product is **name1 (test_001)**, **name1** is the image name, and **test_001** is the product name. You can search for your desired Marketplace image by image name or product name. Alternatively, you can click the image name to view more information about the image.

7. (Optional) Set **Protection**.

When using certain public images, you are advised to use Host Security Service (HSS) to improve the overall security for ECSs. HSS is designed to improve the overall security for ECSs. It reduces intrusion risks with asset management, vulnerability management, intrusion detection, and baseline inspection functions.

Select one of the following options:

- **HSS basic edition (free)**: provides HSS basic edition (1-month free trial), account cracking protection, weak password detection, and malicious program detection.

NOTE

After the free trial period expires, the HSS basic edition quotas will be automatically released, and HSS will not protect your servers.

If you want to retain or upgrade HSS security capabilities, you are advised to purchase HSS. For details, see [Editions and Features](#).

This option is selected by default.

- **None**: Select this option if you do not need security protection.

After you select an HSS edition, the system automatically installs the HSS agent, enables account cracking prevention, and offers host security functions.

HSS provides basic, enterprise, premium, and WTP editions. Switch between these editions on the HSS management console. For details about the differences between versions, see [Editions](#).

8. Set the system disk and data disks

You can create multiple data disks for an ECS and configure functions for each data disk. When creating an ECS, you can add up to 23 data disks to the ECS. The disk size can be customized. You can select **Release with ECS** based on service requirements. After an ECS is created, you can add up to 23 VBD disks or 59 SCSI disks to it.

Click **Show**  and set the following functions if required:

- **SCSI**: If you select this option, the device type of the data disk is SCSI. For more information about SCSI disks and supported ECSs, see [Device Types and Usage Instructions](#).
- **Share**: If you select this option, the data disk is sharable. Then, your disk can be attached to multiple ECSs. Shared disks will not be released with ECSs.
- **Create Disk from Data Disk Image**: If you have created a data disk image on the **Image Management Service** page, when using a Windows or Linux image to create an ECS, you can use the data disk image to create data disks for the ECS.

Click **Create Disk from Data Disk Image**. In the dialog box that is displayed, select your data disk image.

NOTE

- One data disk image can be used only for one data disk.
- When you use a data disk image to create a disk, **SCSI**, **Share**, and **Encryption** are unavailable.
- For instructions about how to create a data disk image, see [Image Management Service User Guide](#).

9. Click **Next: Configure Network**.

Network Settings

1. Set the network.
Select an available VPC and subnet from the drop-down list and specify how a private IP address will be assigned. If no VPC is available, click **Create VPC** to create one.
2. (Optional) Add an extension NIC. You can add multiple extension NICs to an ECS and specify IP addresses for them (including primary NICs).

- **IPv6 not required/Automatically-assigned IPv6 address:** This parameter is available only if the ECS is of specific flavors and in a VPC with IPv6 enabled. For details about how to enable IPv6 on a subnet, see [IPv4 and IPv6 Dual-Stack Network](#). For details about how to check whether an ECS supports IPv4 and IPv6 dual stack, see "Constraints" in [Dynamically Assigning IPv6 Addresses](#).

By default, the system assigns IPv4 addresses. If you select **Automatically-assigned IPv6 address**, the system assigns IPv6 addresses. In a VPC, an ECS uses an IPv6 address to access the dual-stack intranet. To access the Internet, you must enable **IPv6 Bandwidth** and select a shared bandwidth. The HECS X instance then can access the IPv6 Internet through the IPv6 address.

After purchasing an ECS, enable IPv6 so that the ECS dynamically obtains an IPv6 address. For details, see [Dynamically Assigning IPv6 Addresses](#).

NOTE

- IPv6 can only be enabled during instance creation. Once enabled, the configuration cannot be modified. If **IPv6 Bandwidth** is not enabled during instance creation, you can enable it after the instance is created.
 - Dedicated bandwidth is not supported.
- Set **Source/Destination Check**.
When this function is enabled, source IP addresses in the outbound packets will be checked. If the IP addresses are incorrect, the packets will not be sent out. This function helps prevent spoofing packet attacks and improve security. By default, **Source/Destination Check** is set to **ON**.

NOTE

The source/destination check settings apply only to the NICs created with the ECS.

3. Specify **Security Group**.
Select an available security group from the drop-down list. If no security group is available, [create a security group](#) and [configure a security group rule](#) first.
4. Set **EIP**.
An EIP is a static public IP address bound to a cloud server in a VPC. Using the EIP, the cloud server provides services externally.
You can select one of the following options as needed:
 - **Do Not Use:** Without an elastic IP address, the ECS cannot access the Internet and is used only in the private network or cluster.

- **Automatically assign:** An EIP that uses shared bandwidth is automatically assigned to each node.
Bandwidth Name: Select an available shared bandwidth from the drop-down list. If no shared bandwidth is available, click **Buy Shared Bandwidth** to apply for one. For details, see [Assigning a Shared Bandwidth](#).
 - **Use existing:** An existing EIP will be assigned to the cloud server. When using an existing EIP, you cannot create ECSs in batches.
5. Click **Next: Configure Advanced Settings**.

Advanced Settings

1. Set **ECS Name**.

The ECS name can contain only letters, digits, underscores (_), hyphens (-), and periods (.).

If multiple ECSs are purchased at a time, the system automatically sequences these ECSs. For example, if you enter **ecs**, the ECS names will be **ecs-0001**, **ecs-0002**, ...

Allow duplicate ECS names: allows ECS names to be duplicate. If you select **Allow duplicate ECS names** and create multiple ECSs in a batch, the created ECSs will have the same name.

The name of a Windows ECS can contain a maximum of 15 characters and must be unique. Otherwise, some Windows applications cannot be used.

The **ECS Name** set in this step will be the initial host name in the ECS OS.

 **NOTE**

Consecutive periods (.) or hyphens (-) will be replaced with the first character to prevent unknown issues.

2. Set **Login Mode**.

Key pair is recommended because it is more secure than **Password**. If you select the password-based authentication, ensure that the password meets the strength requirements listed in [Table 4-2](#) to prevent malicious attacks.

- Key pair

If you select **Key Pair**, a key pair will be used for ECS login authentication. You can select an existing key pair, or click **Create Key Pair** and create a desired one.

 **NOTE**

If you use an existing key pair, make sure that you have saved the key file to a local directory. Otherwise, logging in to the ECS will fail.

- Password

A username and its initial password will be used for cloud server login authentication.

The initial password of user **root** is used to authenticate Linux ECSs, while that of user **Administrator** is used to authenticate Windows ECSs.

The passwords must meet the requirements described in [Table 4-2](#).

Table 4-2 Password complexity requirements

Parameter	Rule
Password	<p>Consists of 8 to 26 characters.</p> <p>Must contain at least three of the following character types:</p> <ul style="list-style-type: none"> ● Uppercase letters ● Lowercase letters ● Numbers ● Special characters for Windows ECSs: \$! @ % - _ = + [] : / , ? ● Special characters for Linux ECSs: ! @ % - _ = + [] : / ^ , { } ? <p>The password cannot contain the username or the username spelled backwards.</p> <p>For Windows servers, the password cannot contain more than two consecutive characters of the username.</p> <p>For a Windows ECS, the password cannot start with a slash (/).</p>

- Set the password after creating the ECS.

The password for logging in to the ECS is not configured during the ECS creation. After the ECS is created, select **Reset Password** in the **Operation** column, set a password for the ECS as prompted, and log in to the ECS.

3. Configure Cloud Eye.

If you select certain public images, it is a good practice to use the host monitoring function. Host monitoring collects ECS OS metrics, such as CPU usage, memory usage, and network status, so that you can use these metrics to monitor resource utilization or locate a fault.

Enable **Detailed Monitoring**. After you enable this function, the system will automatically install an agent on the ECS to provide 1-minute detailed monitoring for your ECS.

For details about the monitoring metrics after the agent is installed, see [OS Monitoring Metrics Supported by ECSs with the Agent Installed](#).

4. (Optional) Set an ECS group.

This parameter is optional. ECSs in an ECS group are created on different hosts based on the anti-affinity policy or fault domain policy. For details about how to create an ECS group, see [Managing ECS Groups](#).

5. To use functions listed in **Advanced Options**, select **Configure now**. Otherwise, do not select it.

- User Data

Enables the ECS to automatically inject custom instance data when the ECS starts for the first time. This configuration is optional. After this

function is enabled, the ECS automatically injects data during its first startup.

- **As text:** allows you to enter the user data in the text box.
- **As file:** allows you to inject a script or other files when you create an ECS.

For example, if you activate user **root** permission using script data injection, you can log in to the ECS as user **root**.

For details, see [Passing User Data to ECSs](#).

– Tag

Identifier of the ECS. This parameter is optional. Tags help you easily identify and manage your ECS resources. You can add up to 10 tags to an ECS.

 NOTE

Tags added during ECS creation will also be added to the created EIP and EVS disks (including the system disk and data disks) of the ECS. If the instance uses an existing EIP, the tags will not be added to that EIP.

If your organization has created a tag policy for ECS, you need to add tags for instances based on the tag policy. If a tag does not comply with the tag rules, the creation may fail. Contact the organization administrator to learn details about the tag policy.

After creating the ECS, you can view the tags on the pages providing details about the ECS, EIP, and EVS disks.

For detailed operations, see [Tags](#).

– Agency

This parameter is optional. When your ECS resources need to be shared with other accounts, or your ECS is delegated to professional personnel or team for management, the tenant administrator creates an agency in IAM and grants the ECS management permissions to the personnel or team. The delegated account can log in to the cloud system and switch to your account to manage resources. This way, you do not need to share security credentials (such as passwords) with other accounts, ensuring the security of your account.

If you have created an agency in IAM, select the agency from the drop-down list. For more information about agencies, see [Account Delegation](#).

6. Click **Next: Confirm**.

Confirming Configurations

1. Check whether the basic, network, and advanced configurations of the ECS meet service requirements.
2. Set usage duration.
Back up data before you set the scheduled deletion time.
3. **Quantity:** sets the number of ECSs to be purchased.
The maximum number of ECSs you are allowed to purchase is displayed.
4. Read the agreement and select the **Agreement** option.

5. Confirm the configuration and click **Submit**.
After an ECS is created, it starts by default.

4.3.2 Creating an EVS Disk at an Edge Site


This section describes how to create an EVS disk on the CloudPond management console.

1. Select a region.
The default region for CloudPond is the region where the edge site is located. The region cannot be changed.
2. Select an AZ.
The default AZ for CloudPond is an edge AZ. The AZ cannot be changed.
3. (Optional) Attach the EVS disk to an ECS.
You are advised to mount EVS disks directly. After an EVS disk is mounted to an ECS, you need to log in to the ECS and initialize the EVS disk before using it.
4. Select a billing mode.
Currently, only the pay-per-use billing mode is supported.
5. (Optional) Select data source.
 - If you choose **Create from Snapshot**, the snapshot data is used to create the disk.
Click **Create from** and choose **Snapshot**. On the displayed page, select the target snapshot and click **OK**.

NOTE

- The device type of the new disk is the same as that of the snapshot's source disk.
 - The encryption attribute of the new disk is the same as that of the snapshot's source disk.
- If you choose **Create from Image**, the image data is used to create the disk.
Click **Create from** and choose **Image**. On the displayed page, select the target image and click **OK**.

NOTE

- The device type of the new disk is the same as that of the image's source disk.
 - The encryption attribute of the new disk is the same as that of the image's source disk.
6. Set disk specifications.
Only high I/O and ultra-high I/O EVS disks are available.
 7. Click **More**  to set the following parameters if required:
 - Advanced settings
 - Share:
If you select **Share**, a shared disk is created. A shared disk can be attached to up to 16 ECSs. If you do not select **Share**, a non-shared disk is created, and the disk can be attached to one ECS only.

If you select both **SCSI** and **Share**, a shared SCSI disk is created.

- **SCSI:**

If you select **SCSI**, a SCSI disk is created. Such disks allow the ECS OS to directly access the underlying storage media and send SCSI commands to the disks. If you do not select **SCSI**, a VBD disk is created. That said, the disk device type is VBD, the default device type.

 **NOTE**

The sharing attribute and disk mode of a disk cannot be changed after the disk is created.

- (Optional) Tag

Tags are used to identify cloud resources. You can add up to 10 tags to each EVS disk.

8. Set the disk name.

- If you create disks individually, this parameter value is used as the actual disk name.

The name can contain a maximum of 64 characters.

- If you create disks in a batch, this parameter value is used as the prefix of disk names, and one disk name will be composed of this parameter value and a four-digit number.

The name can contain a maximum of 59 characters.

 **NOTE**

The name of a disk can be changed after the disk has been created.

9. Set the purchase quantity.

The default value is set to **1**, which means one disk will be created. You can create a maximum of 100 disks at a time.

If the number of disks you need exceeds the upper limit, click **Increase Quota** to obtain a higher quota. You can purchase the disks you need after the request is approved.

10. Click **Next**.

Confirm the EVS disk information and click **Submit**.

4.3.3 Creating a VPC at an Edge Site

This section describes how to create a VPC on the CloudPond management console.

Basic Information

1. Select a region.

The default region for CloudPond is the region where the edge site is located. The region cannot be changed.

2. Set the VPC name.

The name can contain a maximum of 64 characters and cannot contain spaces. Only letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.

3. Set **IPv4 CIDR Block**.
Choose one from the following CIDR blocks:
 - 10.0.0.0/8~24
 - 172.16.0.0/12~24
 - 192.168.0.0/16~24
4. Click **Advanced Setting** and set the following parameters:
 - (Optional) Tag
Identifier of a VPC. You can classify and search for VPCs by tag. You can add a maximum of ten tags to each VPC.
 - (Optional) Description
Enter up to 255 characters. Angle brackets (< or >) are not allowed.

Default Subnet

1. Select an AZ.
The default AZ for CloudPond is an edge AZ. The AZ cannot be changed.
2. Set **Name**.
The subnet name. The name can contain up to 64 characters and cannot contain spaces. Only letters, digits, underscores (_), hyphens (-), and periods (.) are allowed.
3. Set **IPv4 CIDR Block**.
The CIDR block for the subnet. This value must be within the VPC CIDR block.
4. (Optional) Enable **IPv6 CIDR Block**.
If you select this option, the system automatically assigns an IPv6 CIDR block to the created subnet. Currently, the IPv6 CIDR block cannot be customized. IPv6 cannot be disabled after the subnet is created.
5. Set **Associated Route Table**
After a subnet is created, it is associated with the default route table by default.
6. Click **Advanced Setting** and set the following parameters:
 - Gateway
Gateway address of the subnet. This IP address is used to communicate with other subnets.
 - DNS Server Address
Huawei Cloud private DNS server addresses are entered by default. This allows ECSs in a VPC to communicate with each other and also access other cloud services using private domain names without exposing their IP addresses to the Internet.

You can change the default DNS server addresses if needed. If you delete the default DNS server addresses, your services may fail to access other services on the cloud.

You can also click **Reset** on the right to restore the DNS server addresses to the default value.

A maximum of two DNS server IP addresses can be configured. Multiple IP addresses must be separated using commas (,).

- Domain Name

You can enter domain names (), separated with spaces. A maximum of 254 characters are allowed. A domain name can consist of multiple labels (max. 63 characters each).

To access a domain name, you only need to enter the domain name prefix. ECSs in the subnet automatically match the configured domain name suffix.

If the domain names are changed, ECSs newly added to this subnet will use the new domain names.

If an existing ECS in this subnet needs to use the new domain names, restart the ECS or run a command to restart the DHCP Client service or network service.

 **NOTE**

The command for updating the DHCP configuration depends on the ECS OS. The following commands are for your reference.

- Restart the DHCP Client service: **service dhcpd restart**
- Restart the network service: **service network restart**

- NTP Server Address

The IP address of the NTP server. This parameter is optional.

You can configure the NTP server IP addresses to be added to the subnet as required. The IP addresses are added in addition to the default NTP server addresses.

If you do not specify this parameter, no additional NTP server IP addresses will be added.

Enter a maximum of four valid IP addresses, and separate multiple IP addresses with commas. Each IP address must be unique. If you add or change the NTP server addresses of a subnet, you need to renew the DHCP lease for or restart all the ECSs in the subnet to apply the changes. If the NTP server addresses have been cleared out, restarting the ECSs will not help. You must renew the DHCP lease for all ECSs to make the change take effect immediately.

- IPv4 DHCP Lease Time

- Tag

Subnet tag, which consists of a key and value pair.

- Description

Supplementary information about the subnet. This parameter is optional.

7. Click **Create Now**.

4.3.4 Creating an EIP at an Edge Site

This section describes how to create an EIP on the CloudPond management console.

1. Select a billing mode.

Currently, only the pay-per-use billing mode is supported.

2. Select a region.

The default region for CloudPond is the region where the edge site is located. The region cannot be changed.

3. Set **EIP Type**.

Edge is selected by default. Other values are not supported.

The edge selects a network edge site closer to the required location, lowering network latency.

4. Edge

By default, **Shared Bandwidth** is selected.

The bandwidth can be allocated to multiple EIPs and can be shared among the EIPs. This is suitable for scenarios with staggered traffic.

5. Bandwidth Name

Select an available shared bandwidth from the drop-down list. If no shared bandwidth is available, click **Buy Shared Bandwidth** to apply for one. For details, see [Assigning a Shared Bandwidth](#).

6. DDoS Protection

Cloud Native Anti-DDoS Basic

Cloud Native Anti-DDoS Basic provides up to 5 Gbit/s of DDoS mitigation capacity. If the attack to an EIP exceeds 5 Gbit/s, the EIP will be blocked.

7. Set **EIP Name**.

8. (Optional) Click Advanced Settings and set the following parameters:

Tag

Identifier of an EIP. You can classify and search for EIPs by tag.

9. Monitoring

Enables basic monitoring for EIPs. This parameter is enabled by default. You can use the management console or APIs provided by Cloud Eye to query the metrics and alarms generated for the EIP and bandwidth.

10. Quantity

If the number of EIPs you need exceeds the upper limit, click **Increase quota** to obtain a higher quota. You can purchase the EIPs you need after the request is approved.

11. Click **Next**. Confirm the EIP information and click **Submit**.

4.4 Managing Cloud Resources Provisioned to an Edge Site

Manage cloud resources used by your edge site on the CloudPond console, just as managing cloud resources in the central AZs of Huawei Cloud.

[Table 4-3](#) describes cloud services that are available at edge sites.

Table 4-3 Available cloud services

Service Name	Reference Document
Elastic Cloud Server (ECS)	ECS User Guide

Service Name	Reference Document
Elastic Volume Service (EVS)	EVS User Guide
Virtual Private Cloud (VPC)	VPC User Guide
Elastic IP	Elastic IP User Guide

4.5 Cached Images

Scenarios

When you use an image provided by **IMS** to create an ECS in an edge AZ for the first time, the image will be automatically cached at the edge site and occupy the storage space of CloudPond. When you want to create an ECS later, the image cached at the edge site will be used. This shortens the time required for creating the ECSs.

You can manage cached images on the CloudPond console.


Constraints and Limitations


- Encrypted images cannot be used to create ECSs or cached at edge sites.
- Cached images will be automatically deleted if corresponding images in IMS are changed.

If you want to use changed images at edge sites, use these images to create ECSs in the corresponding edge AZs.

Viewing Cached Images

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, choose **Edge Sites**.

Step 5 Click the edge site name. On the edge site details page, click **Cached Images**.

Step 6 On the **Cached Images** tab page, view the images that have been cached.


Table 4-4 Parameter description


Parameter	Description
Image Name	Name of the cached image, which is the same as the image name in IMS.
Status	<p>Four statuses: Available, Creating, Downloading, or Deleting</p> <ul style="list-style-type: none"> • Available: The image has been cached in CloudPond. . • Creating: The image is being created in IMS. After the creation is complete, the status changes to Downloading. • Downloading: The image is being downloaded from IMS to CloudPond. After the download is complete, the status changes to Available. • Deleting: The cached image is being deleted. <ul style="list-style-type: none"> – Deleting a cached image will not delete the original image in IMS. After the cached image is deleted, you can still find the image on the IMS console and use it to create an ECS in the edge AZ. – If the status remains Deleting for a long time, contact the Huawei Cloud O&M team.
OS	OS of the image.
Image Type	Images are classified into public images, private images, and shared images. For details about their differences, see How Do I Select an Image?
Subtype of the image.	There are three options: system disk image, data disk image, and full-ECS image.
Disk Capacity (GiB)	Disk space required for running the image.
Cached	Time when the image in IMS was cached to CloudPond.
Operation	Click Delete to delete the cached image.

----End

Creating a Cached Image

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, choose **Edge Sites**.

Step 5 Click the edge site name. On the edge site details page, click **Cached Images**.

Step 6 Click **Cache Image**.

Step 7 In the dialog box that is displayed, select the type of the image.

 **NOTE**


For public images, select an OS and its version.


Step 8 Select a disk type and click **OK**.

----End

Deleting a Cached Image

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, choose **Edge Sites**.

Step 5 Click the edge site name. On the edge site details page, click **Cached Images**.

Step 6 Locate the image you want to delete and click **Delete** in the **Operation** column.

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

- Deleted images cannot be recovered.
- Deleting a cached image will not delete the corresponding IMS image. You can still use the image to create ECSs in the edge AZ on the IMS console.

----End

4.6 Capacity Expansion

Scenarios


When your resources cannot meet service requirements, you can log in to the CloudPond console to expand resources of your edge site.


Prerequisites

- The edge site is in the **Available** state.
- If you plan to add racks, ensure that the data center has enough space.

Procedure

Step 1 Log in to the management console.

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

Step 3 Click . In the service list displayed, choose **Content Delivery & Edge Computing > CloudPond**, or enter **CloudPond** in the search box.

The dashboard is displayed.

Step 4 In the left navigation pane, choose **Edge Sites**.

Step 5 Access the **Expand Edge Site Resources** page in either of the following two ways:

1. On the **Edge Sites** page, locate the row that contains an **available** edge site and click **Expand** in the **Operation** column.
2. On the **Edge Sites** page, click the name of the edge site to be expanded. Click the **Order Details** tab and then click **Expand** in the upper left corner.

Step 6 Select a payment method.

There are two payment options: **All upfront** and **Partial upfront + monthly subscription**. The default payment option is **All upfront**. The payment method selected here will only apply to new compute resources for adding racks and new types of storage resources. Existing resources will inherit the payment methods selected at their purchase.

- If you select **All upfront**, you need to pay all charges at a time.
- If you select **Partial upfront + monthly subscription**, you pay 50% at the time of purchase, and the remaining fee is paid in installments within 36 months after acceptance.

Step 7 Select the required duration.

Step 8 Expand edge site resources as needed.

1. Intra-rack capacity expansion
 - a. In the **Compute Resource** area, select the resource specifications as required to expand the capacity of a purchased rack.
 - b. In the **Storage** area, the system will expand the storage capacity to the minimum storage capacity by default based on the expansion of computing resources. You can also select other capacities based on your service requirements.

NOTE

If the capacity expansion quota of the current rack reaches the upper limit, you can continue to expand the capacity by referring [Step 8.2](#) to meet your service requirements.

2. New racks
 - a. In the **Compute Resource** area, click **Add Rack**. Specify the configuration and quantity of required compute units.

 NOTE

- There are three types of compute units: **Basic Compute Unit** (mandatory), **Enhanced Compute Unit** (optional), and **Expansion Unit** (optional).
 - If you need to use expansion units, you must select an enhanced compute unit.
 - You can select one basic compute unit, one enhanced compute unit, and more than one expansion unit. The total number of the three types of compute units cannot exceed 16.
- b. In the **Storage** area, specify the storage capacity you want to add.

 NOTE

If a newly added rack has a new type of storage resources, the storage resources will be displayed in the **Storage** area. By default, the minimum capacity is preset for the storage resources. You can also modify the capacities as needed.

3. Expand storage capacity without adding racks

In the **Storage** area, specify the storage capacity you want to add. If you want to purchase new types of storage resources, see [Step 8.2](#).

Step 9 Click **Next: Confirm** to confirm the resource information.

 NOTE

- If the rack you are adding uses a new type of storage resources, you can select the payment method and required duration for the new storage resources. If the rack you are adding uses storage resources of an existing type, the payment method and required duration are the same as those of the existing resources.
- If you expand compute and storage resources of existing racks, the payment method and required duration are the same as those of the existing resources.

Step 10 Confirm the configuration and read and agree to the agreement.

Step 11 Click **Submit**.

----End

 NOTE

One edge site can only have one expansion order. To create another order, cancel or complete the existing order first.

Follow-up Operations

You can view the resources you expand on the **Order Details** page after you paid. The resources are in the **Expanding** status. After the order is completed, the resource status changes to **Available**. Existing resources are not affected and can still be used during expansion. Only resources being expanded are temporarily unavailable.

5 Monitoring Data

5.1 Cloud Service Monitoring

Use Cloud Eye to monitor cloud resources used at your edge site, just as in the central AZs of Huawei Cloud.

Table 5-1 provides referer documents through which you can view metrics and monitoring data of cloud services supported by CloudPond.

Table 5-1 Reference documents

Service Name	Reference Document
Elastic Cloud Server (ECS)	Monitoring an ECS
Elastic Volume Service (EVS)	Viewing EVS Monitoring Data
Virtual Private Cloud (VPC)	Monitoring a VPC
Elastic IP	Monitoring an Elastic IP

5.2 Monitoring Metrics

Description

This section describes the namespace, monitoring metrics, and monitoring dimensions of CloudPond. You can use Cloud Eye to query CloudPond metrics.

Namespace

SYS.CloudPond

Monitoring Metrics

ID	Metric	Description	Value Range	Monitored Object	Monitoring Period (Raw Data)
connect_status	Connection status	<p>Cloud-edge network status of the monitored edge site</p> <ul style="list-style-type: none"> • 0 indicates that the site is disconnected and a fault occurs. • 1 indicates that some parts of the site are disconnected and subhealthy. • 2 indicates that the site is running properly. 	≥ 0	Edge sites	1 min
vcpu_util	vCPU usage	<p>vCPU usage of the monitored edge site</p> <p>Unit: percent (%)</p> <p>Formula: Number of used vCPUs of the edge site/ Total number of vCPUs of the edge site</p>	≥ 0%	Edge sites	5 min

ID	Metric	Description	Value Range	Monitored Object	Monitoring Period (Raw Data)
mem_util	Memory usage	Memory usage of the monitored edge site Unit: percent (%) Formula: Memory usage of the edge site/Total memory of the edge site	$\geq 0\%$	Edge sites	5 min
vcpu_used	Used vCPUs	Number of vCPUs used by the monitored edge site Unit: N/A	≥ 0	Edge sites	5 min
vcpu_total	Total vCPUs	Total number of vCPUs of the monitored edge site Unit: N/A	≥ 0	Edge sites	5 min
mem_used	Used memory	Memory usage of the monitored edge site Unit: GiB	$\geq 0\text{GiB}$	Edge sites	5 min
mem_total	Total memory	Total memory of the monitored edge site Unit: GiB	$\geq 0\text{GiB}$	Edge sites	5 min
capacity_used	Used storage	Storage usage of the monitored edge site Unit: GiB	$\geq 0\text{GiB}$	Edge sites	5 min
capacity_total	Total storage	Total storage of the monitored edge site Unit: GiB	$\geq 0\text{GiB}$	Edge sites	5 min

ID	Metric	Description	Value Range	Monitored Object	Monitoring Period (Raw Data)
vcpu_used_perflavor	ECS – Used vCPUs of an instance type	Number of vCPUs used by an instance type Unit: N/A	≥ 0	Edge sites, ECSs	5 min
vcpu_total_perflavor	ECS – Total vCPUs of an instance type	Total number of vCPUs of an instance type Unit: N/A	≥ 0	Edge sites, ECSs	5 min
vcpu_util_perflavor	ECS – vCPU usage of an instance type	vCPU usage of an instance type Unit: percent (%) Formula: Number of used vCPUs of an instance type/Total number of vCPUs of the edge site	≥ 0%	Edge sites, ECSs	5 min
mem_used_perflavor	ECS – Used memory of an instance type	Memory used by an instance type Unit: GiB	≥ 0GiB	Edge sites, ECSs	5 min
mem_total_perflavor	ECS – Total memory of an instance type	Total memory of an instance type Unit: GiB	≥ 0GiB	Edge sites, ECSs	5 min

ID	Metric	Description	Value Range	Monitored Object	Monitoring Period (Raw Data)
mem_util_perflavor	ECS – Memory usage of an instance type	Memory usage of an instance type Unit: percent (%) Formula: Used memory of an instance type/ Total memory of the edge site	≥ 0GiB	Edge sites, ECSs	5 min
capacity_used_perblocksstor	EVS – Used storage	Used storage of an EVS disk type Unit: GiB	≥ 0GiB	Edge sites, EVS disks	5 min
capacity_total_perblocksstor	EVS – Total storage	Total storage of an EVS disk type Unit: GiB	≥ 0GiB	Edge sites, EVS disks	5 min
capacity_util_perblockstor	EVS – Storage usage	Storage usage of an EVS disk type Unit: percent (%) Formula: Used storage/Total storage of the edge site	≥ 0%	Edge sites, EVS disks	5 min

Monitoring Dimensions

Key	Value
site_id	Edge sites
vmflavor	Cloud Server Resource
storage	Storage Resource

5.3 Viewing Metrics



Scenarios

The Cloud Eye service monitors operating statuses of CloudPond.

You can view the monitoring metrics of CloudPond on the Cloud Eye management console.

It can take a period of time to obtain and transfer the monitoring data. Wait for a while and then check the data.

Procedure



1. Log in to the management console.
2. Click  in the upper left corner to select a region.
3. Click  to display **Service List**. Under **Management & Governance**, select **Cloud Eye**.
4. In the navigation pane on the left, choose **Cloud Service Monitoring > CloudPond**.
5. Locate the row that contains the edge site you purchased and click **View Metric** in the **Operation** column to check detailed monitoring.

5.4 Creating an Alarm Rule

Scenarios

You can set alarm rules to customize monitored objects and notification policies and to learn your edge site status at any time.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner to select a region.
3. Click  to display **Service List**. Under **Management & Governance**, select **Cloud Eye**.
4. In the navigation pane on the left, choose **Alarm Management > Alarm Rules**.
5. Click **Create Alarm Rule** on the upper right corner.
6. On the **Create Alarm Rule** page, follow the prompts to configure the parameters.

For more information, see [Creating an Alarm Rule](#). The key parameters are as follows:

- **Alarm Type**: Specifies the alarm type to which the alarm rule applies. The value can be **Metric** or **Event**.

- **Resource Type:** Select **CloudPond**.
- **Dimension:** Select **Cloud Server Resource**, **CloudPond**, or **Storage Resource** based on the metric type.

 **NOTE**

- If the metric type is ECS-Single instance, select **Cloud Server Resource** for **Dimension**.
- If the metric type is EVS-Storage, select **Storage Resource** for **Dimension**.
- **Monitoring Scope:** Select **All resources** or **Specific resources** based on the application scope of the alarm rule.
- **Method:** Select **Associate template**, **Use existing template**, or **Configure manually** based on your needs.

 **NOTE**

After an associated template is modified, the policies contained in this alarm rule to be created will be modified accordingly.

- **Alarm Policy:** Specifies the policy for triggering an alarm.
7. Configure the alarm notification.
To send alarm notifications by email, SMS, HTTP, or HTTPS, enable **Alarm Notification**.
For more information, see [Creating an Alarm Rule](#).
 8. Click **Create**.
After the alarm rule is created, if the metric data reaches the specified threshold, Cloud Eye immediately informs you that an exception has occurred.

 **NOTE**



For more information about CloudPond alarm rules, see [Cloud Eye User Guide](#).

5.5 Exporting Monitoring Data

Scenarios

If you want to analyze the usage of your edge site to locate faults, you can export CloudPond monitoring data.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner to select a region.
3. Click  to display **Service List**. Under **Management & Governance**, select **Cloud Eye**.
4. In the navigation pane on the left, choose **Cloud Service Monitoring > CloudPond**.
5. On the **Cloud Service Monitoring** page, click **Export Data**.
6. Configure the time range, period, resource type, dimension, monitored object, and metric.

7. Click **Export**. **NOTE**

You can export data for multiple metrics at a time to a file in .csv format.

- The first row in the exported monitoring report displays the user name, region, service, instance name, instance ID, metric name, metric data, time, and timestamp. You can view historical monitoring data.
- To convert the time using a Unix timestamp to the time of the target time zone, perform the following steps:

- i. Use Excel to open the .csv file.
- ii. Use the following formula to convert the time:

$$\text{Target time} = [\text{Unix timestamp}/1000 + (\text{Target time zone}) \times 3600] / 86400 + 70 \times 365 + 19$$

- iii. Set cell format to **Date**.

For example, to convert a Unix timestamp of 1475918112000 to Shanghai time (UTC+8), use the formula from step b: Target time = [1475918112000/1000 + (+8) x 3600]/86400 + 70 x 365 + 19. Set the cell format to date and select a presentation format such as 2016/3/14 13:30. Then, the target time obtained will be presented as 2016/10/8 17:15.

6 Quota Adjustment

What Are Quotas?

Quotas put limits on the quantities and capacities of resources available to users, for example, the maximum number of edge sites that you can register.

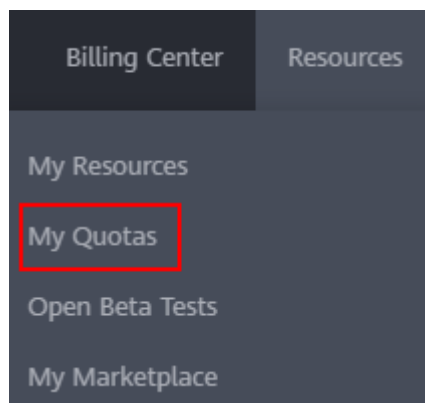
You can request for an increase in quota if an existing quota cannot meet your service requirements.

How Do I View My Quota?

Step 1 Log in to the management console.

Step 2 In the upper right corner of the page, choose **Resources > My Quotas**.

The **Service Quota** page is displayed.



Step 3 On the **Service Quota** page, view the used and total quotas of resources.

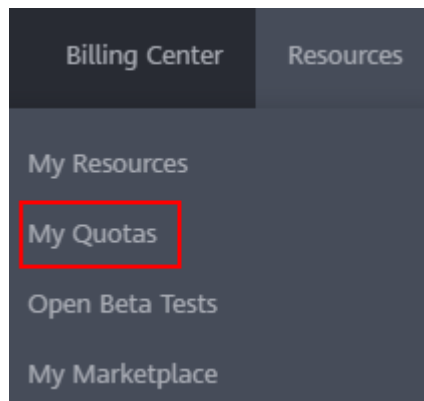
Step 4 If a quota cannot meet your needs, apply for a higher quota by performing the following operations.

----End

How Do I Increase My Quota?

Step 1 Log in to the management console.

- Step 2** In the upper right corner of the page, choose **Resources > My Quotas**.
The **Service Quota** page is displayed.



- Step 3** Click **Increase Quota**.
- Step 4** On the **Create Service Ticket** page, configure parameters as required.
- Step 5** In the **Problem Description** area, enter the required quota and the reason for the quota adjustment.
- Step 6** Select the agreement and click **Submit**.
- End

7 Auditing

7.1 CloudPond Operations Supported by CTS

Scenarios

Cloud Trace Service (CTS) can capture operations performed on CloudPond resources. With CTS, you can record operations associated with CloudPond for later query, audit, and backtrack operations.

Prerequisites

CTS is available.

Key Operations Recorded by CTS

Table 7-1 CloudPond operations that can be recorded by CTS

Operation	Resource	Trace
Creating an edge site	edgeSite	CreateEdgeSite
Deleting an edge site	edgeSite	DeleteEdgeSite
Updating an edge site	edgeSite	UpdateEdgeSite
Purchasing racks for an edge site	edgeSite	PurchaseRacks



7.2 Viewing Traces

Scenarios

CTS starts to record CloudPond operations immediately after it is enabled. The CTS management console stores the operation records of the last 7 days.

The following are operations for you to view the operation records.

Procedure

1. Log in to the management console.
2. Click  in the upper left corner and select a region.
3. Click  to display **Service List**. Under **Management & Governance**, click **Cloud Trace Service**.
4. In the navigation pane on the left, choose **Trace List**
5. Click **Filter** and specify filter criteria as needed. You can query traces using a combination of the following dimensions:
 - **Trace Source, Resource Type, and Search By**

 **NOTE**

Set **Trace Source** to **CloudPond** and **Resource Type** to **edgeSite**.

Select a filter criterion from the drop-down list.

If you select **Trace name** for **Search By**, select a specific 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 the tenant).
- **Trace Status**: Available options include **All trace statuses, Normal, Warning, and Incident**. You can only select one of them.
- **Time Range**: You can view traces generated during any time range of the last seven days.

 **NOTE**

The default time range is last 1 hour. You can select **Last 1 week** in the upper right corner of the page.

6. Expand the trace for details.

Figure 7-1 Trace details

Trace Name	Resource Type	Trace Source	Resource ID	Resource Name	Trace Status	Operator	Recorded	Operation
createToken	token	IAM	b6901346476545...	OTC00000000001...	normal		2019-02-02 18:20:07 GMT+08:00	View Traces
Trace ID		1d017db0-26d4-11e9-9479-286ed488c7a2		Source IP Address				
Trace Type		ConsoleAction		Generated		2019-02-02 18:20:07 GMT+08:00		

7. Click **View Trace**. A dialog box is displayed, in which the trace structure details are displayed.
For details about CTS, see [Cloud Trace Service \(CTS\) User Guide](#).

A Change History

Released On	Description
2024-05-30	This issue is the first official release.