MapReduce Service

Billing Description

Issue 01

Date 2023-09-12

HUAWEI CLOUD COMPUTING TECHNOLOGIES CO., LTD.

Copyright © Huawei Cloud Computing Technologies Co., Ltd. 2023. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of 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.

Contents

1 Overview....1
2 Billing Mode....3
2.1 Introduction....3
2.2 Yearly/Monthly....4
2.3 Pay-per-use....6
3 Billing Item....9
4 Billing Examples....11
5 Billing mode change....14
5.1 Introduction....14
5.2 Pay-per-Use to Yearly/Monthly....15
6 Renewal....17
6.1 Introduction....17
6.2 Performing a Manual Renewal....18
6.3 Auto Renewal....19
7 Bills....22
8 Arrears....28
9 Stopping Billing....30
10 Cost....31
11 FAQs....36
11.1 Why Is the Price Not Displayed During MRS Cluster Creation?....36
11.2 How Is the Task Node in an MRS Cluster Billed?....36
11.3 Why Does My Unsubscription from ECS Fail After I Unsubscribe from MRS?....36

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

1 Overview

By reading this document, you can quickly understand the billing modes, billing items, renewals, and arrears of MapReduce Service (MRS).

- **Billing Modes**

  Currently, MRS supports Yearly/Monthly and pay-per-use billing mode.

  Yearly/Monthly is a prepaid mode. You need to pay for the service before using it. The settlement is based on the purchase period. Therefore, before purchasing a service, you must ensure that your account balance is sufficient. The pay-per-use billing mode is a postpaid mode. In this mode, you need to use the MRS cluster before paying for it. You are charged based on the actual usage duration of the MRS cluster.

  For details about the two billing modes, see **Introduction**.

  After purchasing an MRS cluster, you can change the billing mode if the current billing mode cannot meet service requirements. For details, see **Introduction**.

- **Billing Items**

  The billing items of an MRS cluster consist of the MRS management fee and IaaS infrastructure resource fee (ECS and EVS). For details about the billing factors and formulas of each billing item, see **Billing Item**.

  For details about billing examples in actual scenarios and the fee calculation process of each billing item in different billing modes, see **Billing Examples**.

- **Renewals**

  After a yearly/monthly MRS cluster expires, the cluster cannot run properly. If you want to continue using an MRS cluster, you need to renew it within the specified period. Otherwise, you cannot perform operations on the cluster on the MRS management console, call related APIs, and stop O&M services such as automatic monitoring and alarm reporting. You can renew your subscription manually or automatically. For more information about renewal, see **Introduction**.

- **Bills**

  You can choose Fees and Costs > Bills on the top of the management console to go to the Billing Center. On the Bills page, you can view transaction records and detailed bills related to MRS clusters to learn about your expenditures. For details, see **Bills**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

- **Overdue Payment**

  When using MRS, you do not need to pay arrears for yearly/monthly clusters.

  In pay-per-use mode, cluster fees are deducted every hour. If your account balance is insufficient to pay for the expense occurred in the last hour, your account will be in arrears, and MRS clusters have a **retention period**. If the clusters are renewed within the retention period, they will be available and charged from the original expiration date. For details, see **Arrears**.

- **Stopping Billing**

  The terminated or unsubscribed MRS cluster is no longer billed. For details, see **Stopping Billing**.

- **Cost Management**

  You can manage your costs from 4 dimensions: composition, allocation, analysis, and optimization. For details, see **Cost**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

2 Billing Mode

2.1 Introduction

Currently, MRS supports the yearly/monthly and pay-per-use billing mode billing modes to meet user requirements in different scenarios.

- **Yearly/Monthly**: The duration ranges from one month to one year. The minimum cluster duration is 1 month and the maximum available cluster duration is 1 year.
- **Pay-per-use**: Nodes are charged by actual duration of use, with a billing cycle of one hour.

Table 2-1 lists the differences between the two charging modes.

Table 2-1 Billing Mode

Billing Mode	Yearly/Monthly	Pay-per-use	Reference
Payment	Prepaid Billed by the required duration specified in your order	Postpaid You are charged based on the actual usage duration of an MRS cluster.	-
Billing period	You are charged based on the subscription period. The minimum duration is one month and the maximum duration is one year.	Billed by second and settled by hour	-
Billing items	MRS management fee and IaaS infrastructure resource fee (ECS and EVS)	MRS management fee and IaaS infrastructure resource fee (ECS and EVS)	**Billing Item**

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Billing Mode	Yearly/Monthly	Pay-per-use	Reference
Billing mode change	-	Can be changed to yearly/monthly.	**Pay-per-Use to Yearly/ Monthly**
Specification change	Specifications can be modified, which affects cluster charging. MRS supports the following changes: • Instance Specifications • Node Quantity	Specifications can be modified, which affects cluster charging. MRS supports the following changes: • Instance Specifications • Purchase Quantity	-
Application Scenarios	This cost-effective mode is ideal when the duration of ECS usage is predictable. The yearly/monthly mode is recommended for long-term users.	This mode is ideal when you want more flexibility and control on ECS usage.	-

2.2 Yearly/Monthly

In the yearly/monthly billing mode, you pay before using resources. Use this mode if you need stable resources and want lower costs. This section describes the billing rules of yearly/monthly MRS cluster resources.

Application Scenarios

In yearly/monthly mode, you need to first pay for a certain duration. This mode is suitable for services

with the following characteristics:

- Users can estimate the resource usage period based on service requirements.
- Stable service scenarios.
- Resources need to be used for a long time.

Billing period

The billing cycle of a yearly/monthly MRS cluster is determined by the service duration (UTC+8). A billing cycle starts from the time (accurate to seconds) when your MRS cluster is successfully started or renewed and ends at 23:59:59 on the expiration date.

Yearly/Monthly clusters that have not expired can also be unsubscribed from. In this case, the billing end point is when the cluster is successfully unsubscribed from. For details, see **Unsubscribing from Resources in Use**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

For example, if you purchase an MRS cluster for one month at 2023/06/08 15:50:04, the billing cycle is from 2023/06/08 15:50:04 to 2023/07/08 23:59:59.

Impact on Billing After Specification Change

If the specifications of the current yearly/monthly MRS cluster resources do not meet your service requirements, you can modify the specifications on the MRS console. MRS provides the following configuration modification methods:

- **Scale Out**: Manually add Core or Task nodes. For details, see **Manually Scaling Out a Cluster**.
- **Auto Scaling**: The number of nodes in a cluster can be automatically adjusted based on the service data volume to increase or decrease resources. For details, see **Configuring Auto Scaling Rules**.

  NOTE

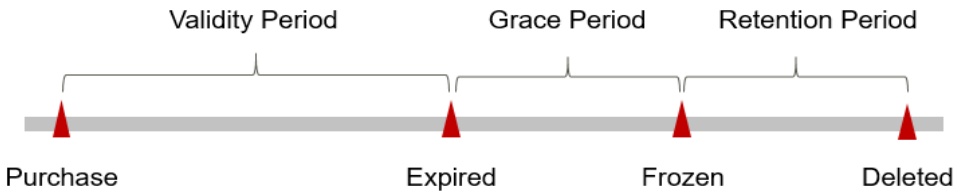
  - During cluster creation, if only the AS value range is configured for the Task node but the number of instances is not configured, no actual fee is generated. The price will include the auto scaling fee after you configure both the auto scaling range and instance count. When the auto scaling conditions are met, the actual fee will be affected after node scaling.
  - If you add nodes through the auto scaling function, the added nodes will be billed by the actual usage duration per hour regardless of whether the cluster's billing mode is yearly/monthly or pay-per-use mode.

Scale-in affects the performance of the MRS cluster. Therefore, you are not advised to perform this operation. The scale-in node is charged based on the actual usage duration, and the subsequent fees of the cluster will not be charged.

Impact of Expiration

Figure 2-1 describes the status of yearly/monthly MRS cluster resources in each phase. After a resource is purchased, the resource runs properly within the billing period. This phase is the validity period. If the resource expires but is not renewed, the resource enters the grace period and retention period.

Figure 2-1 Lifecycle of Yearly/Monthly MRS Resources



Expiration Reminder

Within seven days before a yearly/monthly MRS cluster resource expires, the system pushes an expiration warning message to the user. through the email address or mobile number you used to create your Huawei Cloud account or through internal messages.

Impact of Expiration

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

If your yearly/monthly MRS cluster resources expire and are not renewed, the grace period starts. During the grace period, you can use the MRS cluster, but the following fee-related operations are restricted:

- Scaling out a cluster
- Scaling In a Cluster
- Adding Task nodes
- Unsubscribing from a Cluster

If you do not renew a yearly/monthly MRS cluster within the grace period, the cluster enters the retention period and the resource status changes to Frozen. You cannot perform any operation on the cluster in the retention period.

After the retention period expires, if the yearly/monthly MRS cluster is not renewed, the cluster service will be terminated and the data in the system will be permanently deleted.

NOTE

- For details about renewal, see **Introduction**.

2.3 Pay-per-use

Pay-per-use is a billing mode in which you pay after using the service. This mode is recommended if you do not need any prepayment or long-term commitment. This section describes the billing rules of pay-per-use MRS clusters.

Application Scenarios

- The cluster is used for program R&D or function test in the early stage.
- The use of resources is temporary and unexpected.

Billing Period

In pay-per-use billing mode, MRS clusters are billed by second. The fee is settled on the hour (UTC+8). After the settlement is complete, a new billing cycle starts. The billing starts from the time when the purchased MRS cluster is successfully started and ends at the time when the cluster is deleted.

NOTE

It takes some time for an MRS cluster to start. The billing starts when the cluster is successfully created (that is, the cluster status changes from Starting to Running) instead of when the cluster is created. You can view the time when the cluster is successfully created in the Created At column of the active cluster list.

For example, if you purchase a pay-per-use MRS cluster at 8:45:30 and delete it at 8:55:30, the billing cycle is from 8:00:00 to 9:00:00. Fees are generated from 30 to 8:55:30. The charging duration in this charging period is 600 seconds.

Impact on Billing After Specification Change

If the specifications of pay-per-use MRS cluster resources do not meet your service requirements, you can modify the specifications on the MRS console. MRS provides the following configuration modification methods:

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

- **Scale Out**: Manually add Core or Task nodes. For details, see **Manually Scaling Out a Cluster**.
- **Auto Scaling**: The number of nodes in a cluster can be automatically adjusted based on the service data volume to increase or decrease resources. For details, see **Configuring Auto Scaling Rules**.

  NOTE

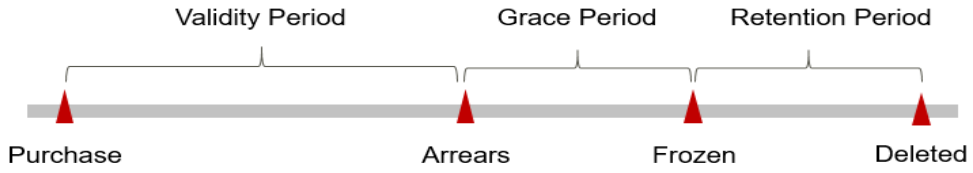
  - During cluster creation, if only the AS value range is configured for the Task node but the number of instances is not configured, no actual fee is generated. The price will include the auto scaling fee after you configure both the auto scaling range and instance count. When the auto scaling conditions are met, the actual fee will be affected after node scaling.
  - If you add nodes through the auto scaling function, the added nodes will be billed by the actual usage duration per hour regardless of whether the cluster's billing mode is yearly/monthly or pay-per-use mode.

Scale-in affects MRS cluster performance. Therefore, you are not advised to perform this operation. The scale-in node is charged based on the actual usage duration and will not be charged later.

Impact of Expiration

Figure 2-2 describes the status of MRS cluster resources charged in pay-per-use mode in each phase. After you purchase a resource, the resource runs properly within the billing period. This phase is valid. If your account is in arrears due to automatic fee deduction for pay-per-use MRS cluster resources, the account status changes to arrears, and the resources enter the grace period and retention period.

Figure 2-2 Life Cycle of MRS Cluster Resources Charged in Pay-per-Use Mode



Arrears Alert

The system will deduct fees for pay-per-use resources upon the end of each billing cycle. If your account goes into arrears, the system will notify you by email, SMS, or in-app message.

Arrears Impact

If your account is in arrears due to automatic fee deduction for pay-per-use MRS cluster resources, the account status changes to Arrears. In arrears, the pay-per-use resource continues rendering service but the resource enters the grace period. You need to pay for pay-per-use resources during the grace period. To view the fees, log in to the management console and choose Fees and Costs > Bills. On the Billing Center page, choose Dashboard > Arrears, HUAWEI CLOUD will automatically deduct the outstanding amount when you top up your account.

If you do not pay the outstanding amount within the grace period, the resource enters the retention period and the resource status changes to Frozen. As a result,

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

some operations are restricted. You are advised to top up your account as soon as possible.

- Procedure
- Scaling out a cluster
- Scaling In a Cluster
- Adding Task nodes

If you do not pay the outstanding amount after the retention period expires, the cluster service will be terminated and the data in the system will be permanently deleted.

Shutdown Charging Policy

Generally, for a pay-per-use MRS cluster, after all ECSs in the cluster are stopped, the charging policy is as follows:

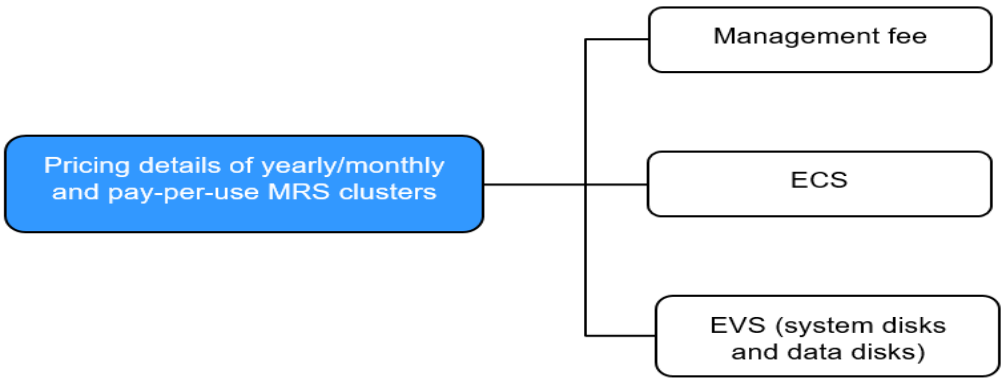
- The MRS cluster management service fee is still charged. To stop charging, delete the cluster.
- For details about ECS billing rules upon ECS shutdown, see **ECS Billing Description**.
- For details about the billing rules for stopped EVS disks, see **EVS disk billing description**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

3 Billing Item

The billing items of an MRS cluster consist of the MRS management fee and IaaS infrastructure resource fee (ECS and EVS).

Figure 3-1 MRS Fee Composition



For details, see **Table 3-1**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Table 3-1 MRS cluster billing items

Billing Item	Description	Billing Mode	Formula
MRS management fee	Billing factor: MRS management is billed by core. The billing varies depending on the region. Including the following items: • MRS common cluster management service fee: This billing item is used when you purchase an MRS common cluster. • MRS-LTS cluster management service fee: This billing item is used when you purchase an MRS LTS cluster.	Yearly/ Monthly and pay-per-use	Number of cores x Number of nodes x Unit price of core specifications x Purchase duration The price of a single core varies according to the cluster type and region. For details, see the price in the **Price Calculator**.
Elastic Cloud Servers	Billed by ECS flavor, including vCPUs and memory. Computing and storage capabilities vary by the number of vCPUs and memory size.	Yearly/ Monthly and pay-per-use	Number of nodes x ECS unit price x Purchase duration The unit price of an ECS is subject to the price in the **Price Calculator**.
EVS disk (system disk and data disk)	Billed by EVS disk type and capacity. Regardless of whether you use the disk after purchasing it, you will be charged right away.	Yearly/ Monthly and pay-per-use	EVS disk size x EVS disk unit price x Purchase quantity x Purchase duration For details about the EVS disk unit price, see .

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

4 Billing Examples

Scenario

At 15:30:00 on March 18, 2023, a user purchased a pay-per-use MRS analysis cluster of the common edition. The specifications are as follows:

- master_node_default_group node group (master node group for short):
  - Number of nodes: 3
  - Node Specifications: c6.2xlarge.2 (8 vCPUs, 16 GB)
  - System disk: ultra-high I/O, 480 GB
  - Data disk: ultra-high I/O, 600 GB
- core_node_analysis_group node group (Core node group for short):
  - Number of nodes: 3
  - Node specifications: c6.xlarge.4 (4 vCPUs, 16 GB)
  - System disk: general-purpose SSD, 480 GB
  - Data disk: general-purpose SSD, 600 GB

After a period of time, the user finds that the current specifications of the MRS cluster cannot meet service requirements and adds a node to the core_node_analysis_group node group at 09:00:00 on March 20, 2023. Due to continuous service growth, the memory of the master_node_default_group node group is insufficient. At 10:00:00 on March 20, 2023, the specifications of the Master node are upgraded to c6.2xlarge.4 (8 vCPUs, 32 GB). Since the cluster is intended for long-term use, the billing mode is switched to yearly/monthly on Mar 20, 2023, 11:00:00, and the billing period is for one month. How much is the total fee generated by the cluster from March to April?

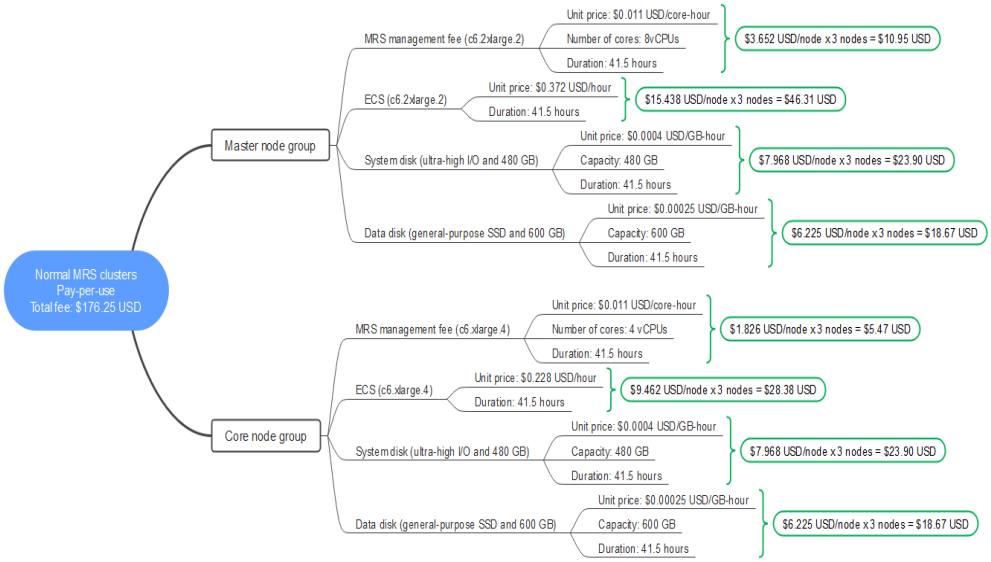
Billing Analysis

Cluster usage can be divided into two billing modes: pay-per-use billing from 2023/03/18 15:30:00 to 2023/03/20 11:00:00 and yearly/monthly billing from 2023/03/20 11:00:00 to 2023/04/20 23:59:59.

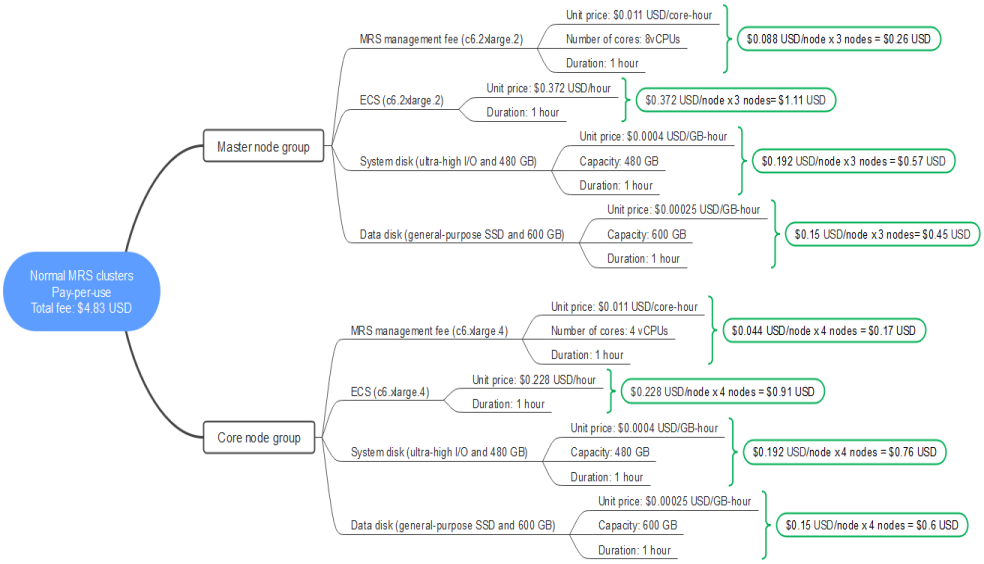
Pay-per-Use

From 2023/03/18 15:30:00 to 2023/03/20 9:00:00, you are billed based on the cluster specifications used during cluster creation for 41.5 hours. The fee is calculated as follows:

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

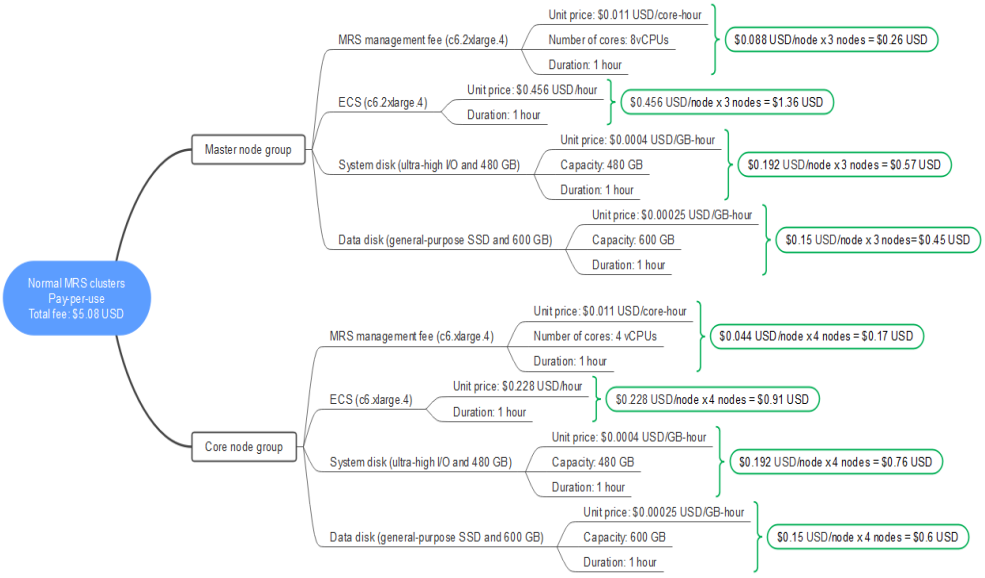


If one node is added to the Core node group from 9:00:00 to 10:00:00 on March 20, 2023, 20 for one hour, the fee is calculated as follows:



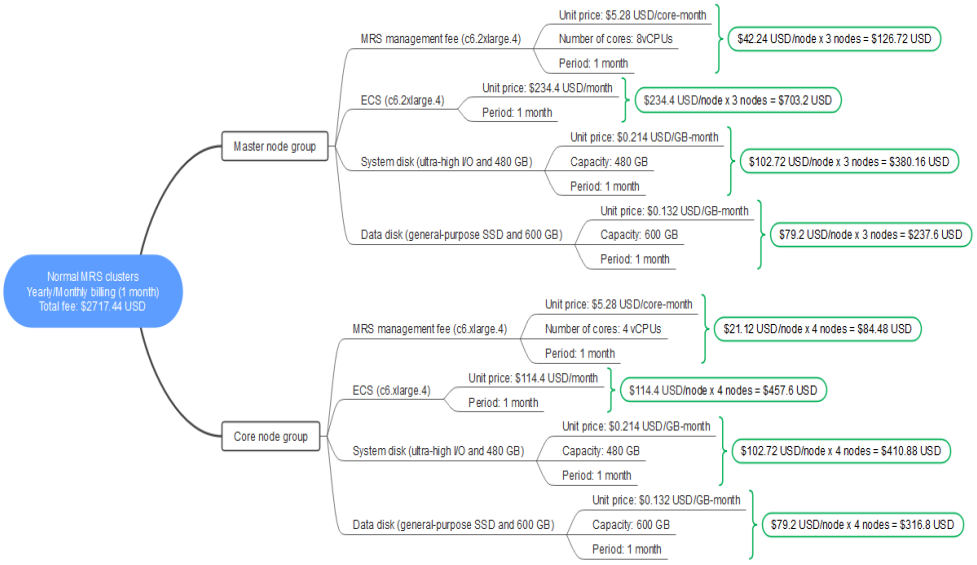
From 10:00:00 to 11:00:00 on March 20, 2023/03/20, the specifications of the Master node group are upgraded to c6.2xlarge.4 (8 vCPUs, 32 GB) and the billing duration is one hour. The fee is calculated as follows:

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.



Yearly/Monthly

From 2023/03/20 11:00:00 to 2023/04/20 23:59:59, the yearly/monthly billing mode is used. The billing duration is one month. The fee is calculated as follows:



From March to April, the total price of this ECS is $2903.6 USD (176.25 + 4.83 + 5.08 + 2717.44).

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

5 Billing mode change

5.1 Introduction

After purchasing an MRS cluster, if the current billing mode cannot meet service requirements, you can change the billing mode of the cluster. The corresponding IaaS infrastructure resource fee changes accordingly. MRS only allows you to change the billing mode of pay-per-use clusters to yearly/monthly. **Table 5-1** lists the MRS billing items that support this billing mode change. You can change the billing mode of MRS clusters from pay-per-use to yearly/monthly to enjoy certain price discounts.

Table 5-1 MRS billing items whose billing modes can be changed

Billing Item	Change description	Reference
MRS management fee	Changing the billing mode of an MRS cluster will also change the billing mode of MRS management.	**Pay-per-Use to Yearly/ Monthly**
Elastic Cloud Servers	Changing the billing mode of an MRS cluster will also change the billing mode of ECSs in the cluster.	
EVS disk	Changing the billing mode of an MRS cluster will also change the billing mode of the EVS disks attached to the ECSs in the cluster. The billing mode of a pay-per-use non-shared EVS disk cannot be changed to yearly/monthly independently. Instead, it must be changed to yearly/monthly together with the ECS. After the change, the expiration time of the EVS disk is the same as that of the ECS.	

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

5.2 Pay-per-Use to Yearly/Monthly

If you want to use a pay-per-use MRS cluster for a long time, you can change the billing mode of the MRS cluster to yearly/monthly to reduce costs. If you change the billing mode from pay-per-use to yearly/monthly, a new order is generated. The yearly/monthly resource takes effect immediately when you make the payment.

Assume that a user purchased a pay-per-use MRS cluster at 15:29:16 on June 18, 2023. Due to service requirements, the user changed the billing mode of the cluster to yearly/monthly at 16:30:30 on June 18, 2023 to generate an order of the pay-per-use to yearly/monthly type. After you pay the order, the change from pay-per-use to yearly/monthly takes effect immediately.

On the management console, choose Fees and Costs > Bills to go to the Billing Center. The following bills are generated on the Bills page:

- Pay-per-use: 2023/06/18 15:00:00 to 2023/06/18 16:00:00. Fees are generated between 15:29:16 and 16:00:00.
- Pay-per-use: 2023/06/18 16:00:00 to 2023/06/18 17:00:00. Fees are generated between 16:00:00 and 16:30:30.
- Yearly/Monthly: 2023/06/18 16:30:30

Prerequisites

- The billing mode of MRS clusters is **Pay-per-use**.
- The MRS cluster is in the **Running** state.

Procedure

Step 1 Log in to the MRS management console.

Step 2 In the left navigation pane, choose **Clusters** > **Active Clusters**.

Step 3 In the **Operation** column corresponding to the cluster for which you want to change the billing mode, click **Change to Yearly/Monthly**.

Step 4 If you are sure you want to change the billing mode, click **Yes**.

Step 5 On the **Change Subscription** page that is displayed, choose how often you would like to renew and click **Pay**.

After the order is submitted, the cluster status changes from **Running** to **Changing to Yearly/Monthly**.

After the order is paid successfully, the cluster billing mode starts changing to **Yearly/Monthly**. After the billing mode is successfully changed, the cluster status is **Running**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

NOTE

After the billing mode is changed to yearly/monthly, task nodes in a cluster are still billed in pay-per-use mode. During the change, the configured AS rules do not trigger scaling actions. Change the billing mode at an appropriate time to avoid any adverse impact on your services.

----End

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

6 Renewal

6.1 Introduction

After a yearly/monthly MRS cluster expires, ECSs cannot run properly. If you want to continue using the MRS cluster, you need to renew it within the specified period. Otherwise, the cluster service will be terminated and data in the system will be permanently deleted.

The renewal operation applies only to MRS clusters charged in yearly/monthly mode. MRS clusters charged in pay-per-use mode do not need to be renewed. You only need to ensure that your account balance is sufficient.

The MRS cluster is successfully renewed before it expires. All resources are retained and the running of the MRS cluster is not affected. For details about the status of an MRS cluster after it expires, see **Impact of Expiration**.

Renewal Functions

Table 6-1 describes the functions related to the renewal of yearly/monthly MRS clusters.

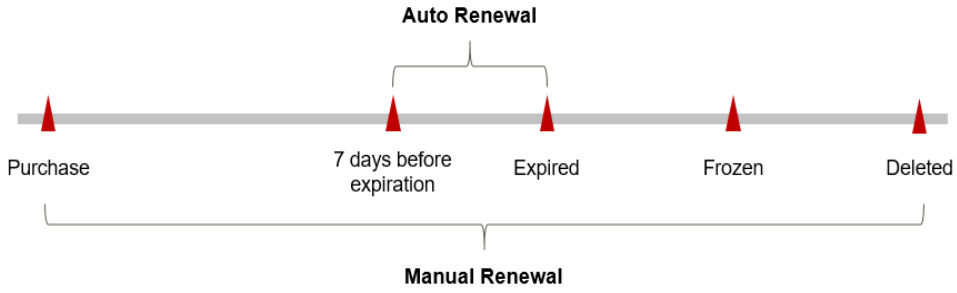
Table 6-1 Renewal Functions

Module	Remarks
Performing a Manual Renewal	Before a yearly/monthly MRS cluster is automatically deleted, you can renew it on the MRS console at any time to prolong its service life.
Auto Renewal	After auto-renewal is enabled, MRS clusters are automatically renewed before each expiration. This prevents resources from being automatically deleted if you forget to manually renew them.

You can renew a yearly/monthly MRS cluster in different phases of its lifecycle. For details, see **Figure 6-1**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Figure 6-1 MRS Cluster Lifecycle



- An MRS cluster is in the **Running** state from the time when it is purchased to the time when it expires.
- After the cluster expires, the cluster status changes to expired.
- If the resource is not renewed upon expiration, the MRS cluster enters the grace period. If the resource is not renewed after the grace period expires, the resource status changes to **Frozen**.
- If you do not renew your subscription after the grace period expires, your resource enters a retention period. If you do not renew the subscription within the retention period, your resource is automatically deleted.

Auto-renewal can be enabled before the MRS cluster expires. The system attempts to automatically renew the MRS cluster at 03:00 on the seventh day before the MRS cluster expires. If the fee deduction fails, the system attempts to automatically renew the MRS cluster at 03:00 every day until the MRS cluster expires or the renewal is successful. By default, fees are deducted seven days before your subscription expires. You can change this deduction date as required.

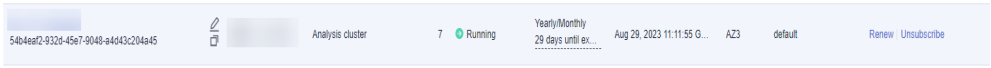
6.2 Performing a Manual Renewal

From the time when you purchase a yearly/monthly MRS cluster to the time when the cluster is automatically deleted, you can renew the cluster on the MRS console at any time to prolong the cluster validity period.

Renewing a Resource on the MRS Management Console

Step 1 Log in to the MRS management console.

Step 2 In the active cluster list, locate the row that contains the cluster to be renewed and click **Renew** in the **Operation** column.



----End

Setting a Renewal Date

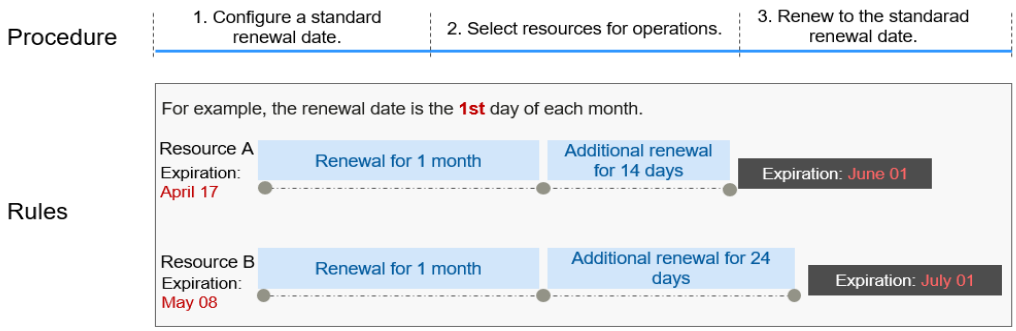
If you have multiple MRS clusters with different expiration dates or your MRS clusters and the EVS disks attached to them have different expiration dates, you

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

can set the expiration dates to the same date to facilitate routine management and renewal.

Figure 6-2 shows the effect comparison after a user renews two resources that will expire at different time for one month and sets a renewal date.

Figure 6-2 Setting a fixed renewal date



For more information about renewal date rules, see **How Do I Set a Renewal Date?**

6.3 Auto Renewal

Auto-renewal reduces the management cost of manual renewal and prevents MRS clusters from being automatically deleted if you forget to manually renew the subscription. The auto-renewal rules are as follows:

- The first auto-renewal date and billing cycle are calculated based on the expiration date of the MRS cluster.
- The auto-renewal period of an MRS cluster varies depending on how you enable auto-renewal.
- Auto-renewal can be enabled before the MRS cluster expires. The system attempts to automatically renew the MRS cluster at 03:00 on the seventh day before the MRS cluster expires. If the fee deduction fails, the system attempts to automatically renew the MRS cluster at 03:00 every day until the MRS cluster expires or the renewal is successful.
- After auto-renewal is enabled, you can manually renew the MRS cluster. After a manual renewal is complete, auto-renewal is still valid, and fees start to be deducted seven days before the new subscription expires.
- By default, the system automatically deducts fees seven days before the auto-renewal expires. You can change the deduction date as required, for example, six days before the auto-renewal expires or five days before the auto-renewal expires.

Enable auto-renewal for yearly/monthly MRS clusters. For more information about auto-renewal, see **Auto-Renewal**.

Prerequisites

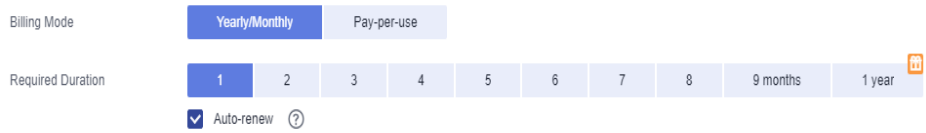
Ensure that the yearly/monthly MRS cluster has not expired.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Enabling Auto-renewal on the Buy MRS Cluster Page

You can enable auto-renewal on the Buy Yearly/Monthly MRS Cluster page, as shown in **Figure 6-3**. For more information about purchasing an MRS cluster, see **Buying a Custom Cluster**.

Figure 6-3 Enabling auto-renewal



When purchasing an MRS cluster, comply with the following rules to enable auto-renewal:

- Your subscription will be renewed each month for monthly billing.
- Yearly billing: Your subscription will be renewed each year.

Enabling Auto-Renewal on the Renewals Page

Step 1 Log in to the management console.

Step 2 Hover over **Billing & Costs** in the upper part of the console and choose **Renewal** from the drop-down list.

Go to the **Renewals** page.

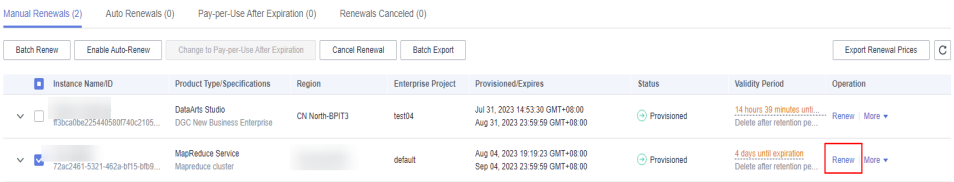
Step 3 Customize search criteria.

- In the **Auto Renewals** tab, you can view the resources for which auto-renewal has been enabled.
- You can enable auto-renewal for resources in the **Manual Renewals**, **Pay-per-Use After Expiration**, and **Renewals Canceled** tabs.

Step 4 Enable auto-renewal for yearly/monthly resources.

- Enabling auto-renewal for a single resource: Select the MRS cluster for which you want to enable auto-renewal and click **Renew** in the **Operation** column.

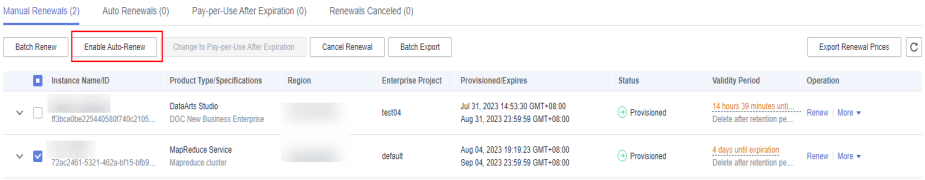
  Figure 6-4 Enabling auto-renewal for a single resource



- Enabling auto-renewal for resources in batches: Select MRS clusters for which you want to enable auto-renewal and click **Enable Auto-Renew** in the upper left corner above the list.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

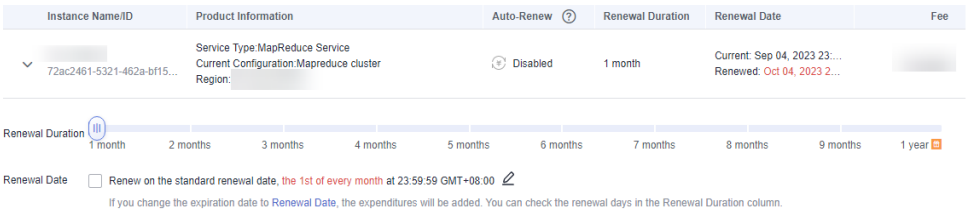
Figure 6-5 Enabling auto-renewal for multiple resources



Step 5 Select a renewal period, specify the desired auto-renewal times, and click **Pay**.

If auto-renewal is enabled on the **Renewals** page, the auto-renewal period is subject to the selected renewal period and number of auto-renewals. For example, if you select three months renewal duration and do not select **Preset auto-renewals**, your subscription is automatically renewed for three months before each expiration.

Figure 6-6 Enabling auto-renewal



----End

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

7 Bills

On the management console, choose **Billing & Costs** > **Bills** to go to the billing center. On the displayed page, view the resource bills to learn about the usage and charging information of the resource in a certain period.

Bill Reporting Period

After yearly/monthly resources are paid, a bill is reported to the billing system for settlement.

The usage of pay-per-use resources is reported to the billing system at a fixed interval. Based on the usage type, pay-per-use billing mode products can be settled by hour, day, or month.

Pay-per-use billing mode of MRS clusters are settled by hour. The fee deduction time of pay-per-use resources may be later than the settlement period.

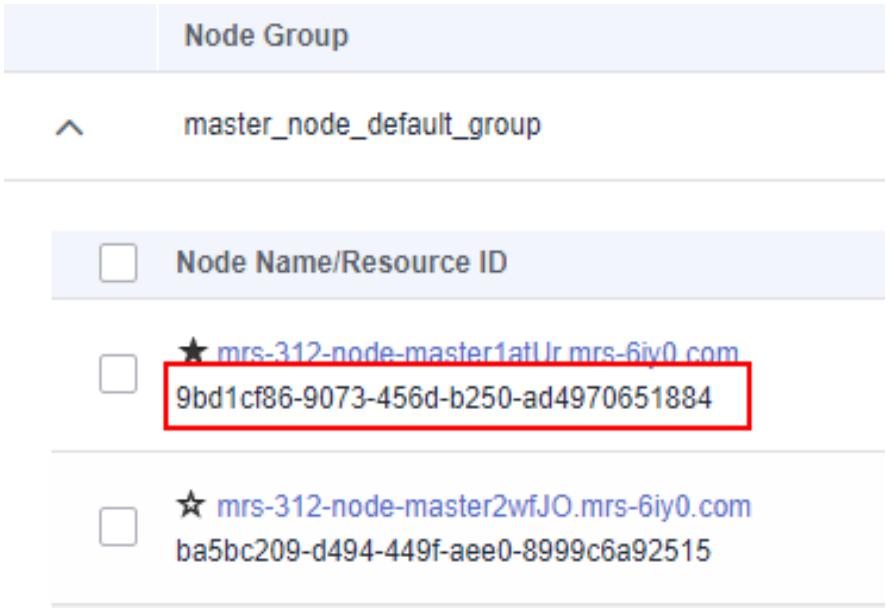
Using a Resource ID to View Bills of a Specified Resource

Step 1 Log in to the management console and choose **Analytics** > **MapReduce Service**. The active MRS cluster list is displayed.

Step 2 Click the name of the cluster to be queried, click **Nodes**, and query and record the ID of the cluster node whose bill you want to view.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Figure 7-1 Viewing the cluster node ID



Step 3 Click the name of the node to be queried. The elastic cloud server page of the node is displayed. On the **Elastic Volume Service** page, click ⌄ on the left of the system disk and data disk names to view and record the ID of each EVS disk.

Step 4 Click **Summary**. In the **ECS Information** area, view and record the ECS ID.

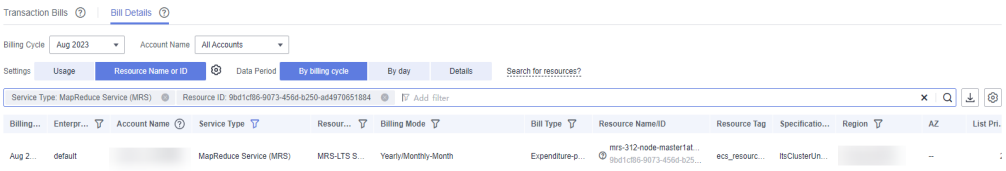
Step 5 On the top menu bar of the console, choose **Billing & Costs** > **Bills**.

Step 6 Choose **Transactions and Detailed Bills** in the navigation pane on the left, click the **Bill Details** tab, and set **Settings** to **Resource Name or ID**.

Viewing the MRS Cluster Management Fee of a Specified Resource ID

Step 7 Click the search bar, select **Service Type**, and specify **MapReduce Service (MRS)**. Enter the cluster node ID obtained in **Step 2** and click 🔍 to search for the service management fee of the resource.

Figure 7-2 Viewing the MRS cluster management fee of a specified resource ID

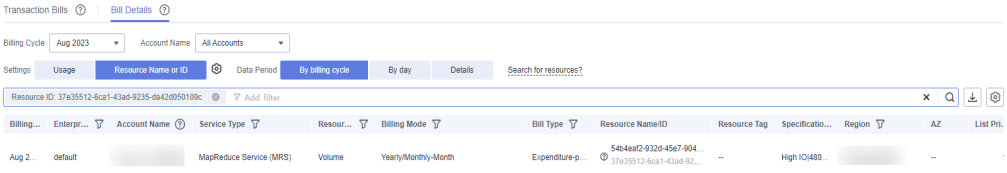


Viewing IaaS Infrastructure Resource Fees (ECSs and EVS Disks) of a Specified Resource ID

Step 8 Click the search bar and select **Resource ID**. Enter the system disk ID and data disk ID obtained in **Step 3** and click 🔍 to search for the system disk or data disk fee.

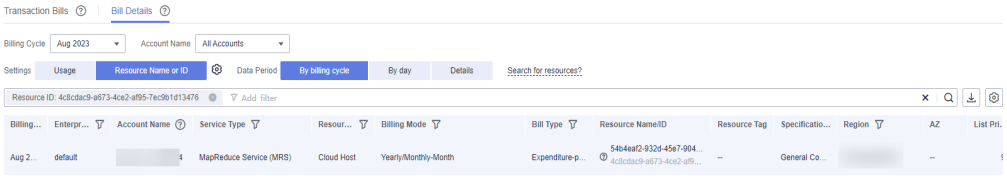
 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Figure 7-3 Viewing the fee of a system disk or data disk



Step 9 Click the search bar and select **Resource ID**. Enter the ECS ID obtained in **Step 4** and click to search for the cluster node fee.

Figure 7-4 Viewing the fee of a cluster node



----End

Scenario Example: Checking Whether the Resource Usage Is Consistent with the Actual Resource Usage

Assume that you purchased a pay-per-use MRS cluster of the common edition at 14:38:04 on July 24, 2023 and deleted it at 15:38:04 on July 24, 2023. The cluster specifications are as follows:

- **master_node_default_group** node group (master node group for short):
  - Number of nodes: 3
  - Node Specifications: c6.4xlarge.4 (16 vCPUs | 64 GB)
  - System disk: ultra-high I/O and 100 GB
  - Data disk: ultra-high I/O and 200 GB
- **core_node_analysis_group** node group (Core node group for short):
  - Set **Nodes** to **2**.
  - Node Specifications: c6.2xlarge.4 (8 vCPUs | 32 GB)
  - System disk: general-purpose SSD and 100 GB
  - Data disk: general-purpose SSD and 200 GB

Transaction Bills of MRS Common Edition Clusters

In pay-per-use billing mode, MRS clusters are billed by second. The fee is settled on the hour. Each MRS cluster node is billed separately. You can choose **Billing & Costs** > **Bills** on the top of the management console to enter the **Billing Center**, choose **Billing** > **Transactions and Detailed Bills**. In the **Transaction Bills** tab, check whether the information about each billing cycle is consistent with the actual information, as shown in **Table 7-1**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Table 7-1 MRS cluster transaction bill

Product type	MRS
Product	• MRS-BASIC service fee • Elastic Cloud Server (ECS) • EVS disk
Billing Mode	Pay-per-use
Expenditure Time	From 2023/07/24 14:38:04 to 2023/07/24 15:38:04, the billing system generates transaction bills for each billing cycle. • 2023/07/24 14:38:04 ~ 2023/07/24 15:00:00 • 2023/07/24 15:00:00 ~ 2023/07/24 16:00:00
List Price	Official website price: • MRS management fee: **Number of cores x Number of nodes x Unit price of core specifications x Purchase duration** • ECS: **Number of nodes x ECS unit price x Purchase duration** • EVS disk (system disk and data disk): **EVS disk size x EVS disk unit price x Purchase quantity x Purchase duration** In this example, the usage of an MRS cluster of the common edition in the first billing cycle is 1316 seconds. You can query the unit price in **Price Calculator**.
Truncated amount	Huawei Cloud bills a resource with the price accurate to the 8th decimal place. However, the amount due is truncated to the 2nd decimal place, while the third and later decimal places are referred to as the truncated amount.
Amount due	Amount payable = Official website price – Zero amount

Detailed Bills of MRS Clusters of the Common Edition

On the management console, choose **Billings & Costs** > **Bills**. On the **Billing Center** page that is displayed, choose **Billing** > **Transactions and Detailed Bills**. In the **Bill Details** tab, you can view bill details from multiple dimensions. Generally, you can set **Settings** to **Usage** and **Data Period** to **By billing cycle** to collect statistics on the total cost of a resource in a month. You are advised to check whether the information shown in **Table 7-2** is consistent with the actual situation.

Table 7-2 MRS cluster detailed bill

Product type	MRS

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Product	• MRS-BASIC service fee • Elastic Cloud Server (ECS) • EVS disk
Billing Mode	Pay-per-use
Resource Name/ID	• MRS management fee: MRS cluster node name and ID, for example, 3333-node-master1DqDR.com and 777d75bd-d60e-4546-a2b4-712406ffd744 • ECS fee: ECS name and ID, for example, d222e5e1-f8a2-419d-9c4f-65c90ba79053_node_master1DqDR and d8517e27-c8ff-437f-ac13-48b30389ae0a • EVS disk (system disk and data disk): system disk/data disk name and ID, for example, d222e5e1-f8a2-419d-9c4f-65c90ba79053_node_master1DqD-volume-0000 and a06d912b-71eb-4993-a988-55e2543d1084
Specification	• Cluster type and number of cores, for example, common cluster unit product|8 (times) • ECS type, vCPU, memory, and OS, for example, General computing|Si2.2xlarge.4|8vCPUs|32GB|linux • Specifies the type and capacity of the EVS disk, for example, High I/O|100 GB.
Usage Type	The usage type of the pay-per-use MRS cluster is duration.
Unit Price	In the Pay-per-Use billing mode, the unit price is provided only when the amount is equal to the usage multiplied by the unit price. No unit price is provided in other pricing modes, for example, tiered pricing. MRS clusters billed in pay-per-use mode are priced in simple mode. For details about how to query the unit price, see: • You can query the unit price of the MRS management fee on the **Price Calculator** page. • You can query the unit price of an ECS on the **Price Calculator** page. • You can query EVS disks (system and data disks) on the **Price Calculator** page.
Used	The usage is displayed based on the unit price of the product.
Usage Unit	Hour

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

List Price	Official website price: • MRS management fee: **Number of cores x Number of nodes x Unit price of core specifications x Purchase duration** • ECS: **Number of nodes x ECS unit price x Purchase duration** • EVS disk (system disk and data disk): **EVS disk size x EVS disk unit price x Purchase quantity x Purchase duration**
Discounted amount	Discounts offered for cloud services, for example, commercial discounts, partner authorized discounts, and promotional discounts. It is the discounted amount based on the list price.
Amount due	Amount that should be paid for used cloud services after discounts are applied.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

8 Arrears

When a user uses MRS, if the available quota of the user's account is less than the bill to be settled, the user's account is in arrears. If your account is in arrears, the MRS cluster may not run properly. Recharge your account in time.

Reasons

The balance of the pay-per-use billing mode account is insufficient.

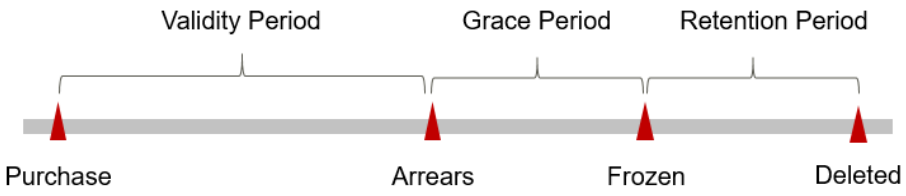
Impact of Arrears

If your account is in arrears due to automatic fee deduction for pay-per-use MRS cluster resources, the account status changes to Arrears. In arrears, the pay-per-use resource continues rendering service but the resource enters the grace period. You need to pay for pay-per-use resources during the grace period. To view the fees, log in to the management console and choose **Billing & Costs** > **Bills**. On the **Billing Center** page that is displayed, view the arrears amount on the **Overview** page, Huawei Cloud will automatically deduct the outstanding amount when you top up your account.

If you do not pay the arrears within the grace period, the resource enters the retention period and its status changes to **Frozen**. You cannot perform any operations on the pay-per-use resources in the retention period.

If you do not pay the arrears after the retention period expires, the cluster service will be terminated and the data in the system will be permanently deleted.

Figure 8-1 Life cycle of an MRS cluster charged in pay-per-use mode



Avoiding and Handling Arrears

You need to top up your account in time if your account is in arrears.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Delete unnecessary MRS clusters to avoid unexpected fees.

On the management console, choose **Billing & Costs** > **Bills**. After entering the **Billing Center**, set quota warning on the **Overview** page. When the available quota is lower than the warning threshold, the system automatically sends an SMS message or email.

If your account is in arrears, top up your account in time.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

9 Stopping Billing

Resources Billed on a Yearly/Monthly Basis

For resources billed on a yearly/monthly basis, for example, a yearly/monthly MRS cluster, you pay for the resources at a time when purchasing them. The services will be automatically stopped after they expire.

- If a yearly/monthly resource is no longer used within the billing cycle, you can unsubscribe from it. The system will refund a certain amount of money to your account based on whether the resource is a five-day unconditional unsubscription. For details about unsubscription rules, see **Unsubscribing from In-Use Resources**
- If you have enabled the auto-renewal function, disable it before the auto-renewal deduction date (seven days before the expiration date by default) to avoid unexpected fees.

Pay-per-Use Resources

If pay-per-use billing mode resources, such as pay-per-use MRS cluster resources, are no longer used and need to be charged, delete them.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

10 Cost

As more and more enterprises are migrating their services to the cloud, they focus more on cloud costs. How to manage costs and reduce service loads when using MRS? The following describes how to manage costs from four dimensions: cost composition, allocation, analysis, and optimization, to help maximize return on your investment.

Cost Composition

When an MRS cluster is used, the cost includes the following two aspects:

- Resource cost: indicates the cost of each type of resource and resource package, which depends on the MRS billing items. For details, see **Billing Item**.
- O&M cost: refers to the labor cost generated when MRS is used.

Huawei Cloud **Cost Center** helps you manage resource costs efficiently. You need to identify, manage, and optimize O&M costs on the page.

Cost Allocation

A good cost accountability system is the basis of cost management. It ensures that departments, business teams, and owners are accountable for their respective cloud costs. Allocate costs to different teams or projects so that organizations have a clear picture of their respective costs.

Huawei Cloud **Cost Center** supports cost collection and reallocation with multiple tools for you to choose from.

- **Allocate costs by linked account.**

  The master customer can use the associated account to collect the costs of the sub-customers and perform financial management on the sub-accounts. For details, see **Viewing Costs by Linked Account**.
- **Allocate costs by enterprise project.**

  Before allocating costs, enable Enterprise Project Management Service (EPS) and plan your enterprise projects based on your organizational structure or businesses. Select an enterprise project for a newly purchased cloud resource so that the costs of that resource will be allocated to the selected enterprise project. For details, see **Viewing Costs by Enterprise Project**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Figure 10-1 Selecting an enterprise project for the MRS cluster

- **Allocate costs by cost tag.**

  Huawei Cloud assigns tags to your cloud resources so they can be sorted in different ways, for example, by purpose, owner, or environment. The following is the process of managing costs by predefined tags.

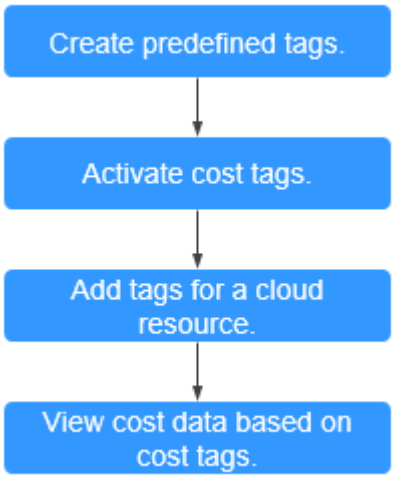


Figure 10-2 Adding a tag to a cluster

For details, see **Viewing Costs by Cost Tag**.

- **Allocate costs by cost category.**

  Enterprises can use the **Cost Categories** of the **Cost Center** to split common costs. Shared costs include the costs for the resources (compute network, storage, or resource packages) shared across departments or the costs that cannot be directly split by cost tag or enterprise project configured for the resources. These costs are not directly attributable to a singular owner, and hence cannot be categorized into a singular cost category. In this case, you can define cost splitting rules to fairly allocate these costs among teams or business units. For details, see **Viewing Cost By Cost Category**.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Cost Analysis

To accurately control and optimize your costs, you need a clear understanding of what parts of your enterprise incurred different costs. The **Cost Center** uses the cost analysis summary and filtering mechanism to visualize the original cost and amortized cost of an enterprise. In this way, the cost and usage trends and drivers can be analyzed from various perspectives and scopes.

Enterprises can also use the cost monitoring function of the **Cost Center** to detect unplanned expenses in a timely manner. In this way, costs can be monitored, analyzed, and traced.

For details, see **Performing Cost Analysis to Explore Costs and Usage** and **Enabling Cost Anomaly Detection to Identify Anomalies**.

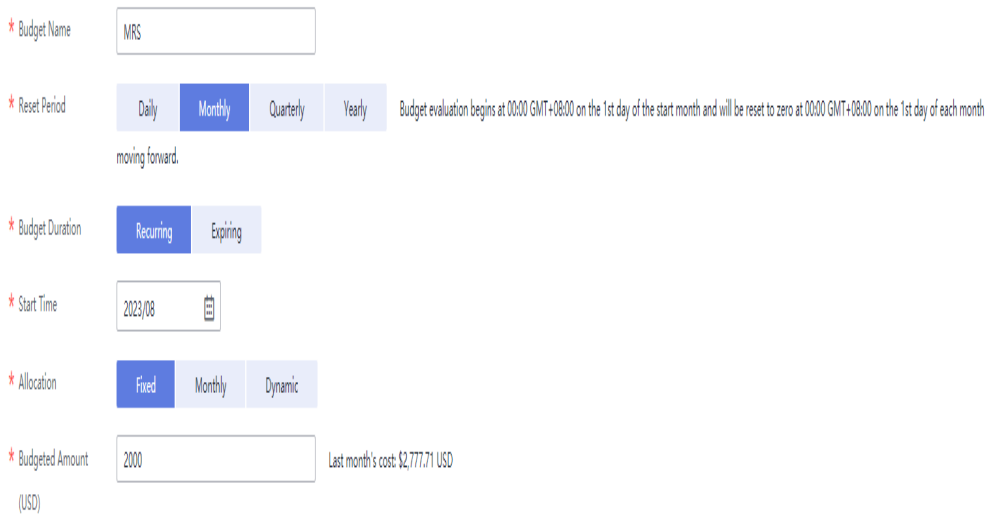
Cost Optimization

- **Cost control**

  You can create different types of budgets on the **Budgets** page of Cost Center to track your costs against the budgeted amount you specified and send alerts to the recipients you configured if the thresholds you defined are reached. You can also create budget reports and Huawei Cloud will periodically generate and send to the recipients you configured on a schedule you set.

  For example, an enterprise needs to create a pay-per-use cost budget for MRS. The monthly budget is $2000 USD. When the forecast amount is greater than 80% of the budget amount, a budget alarm is sent. Then, the created budget is as follows:

  Figure 10-3 Basic budget information

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

Figure 10-4 Budget scope

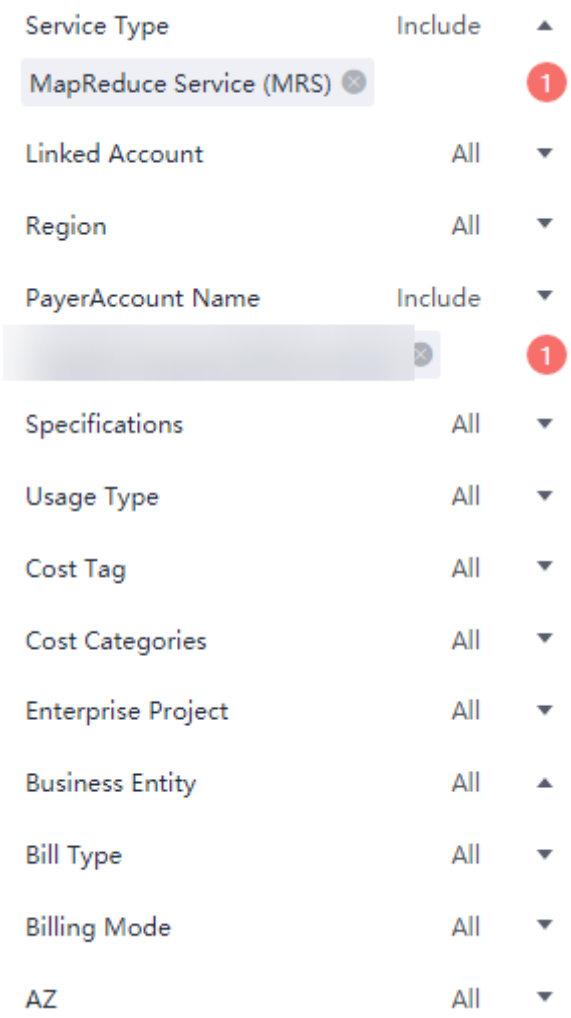
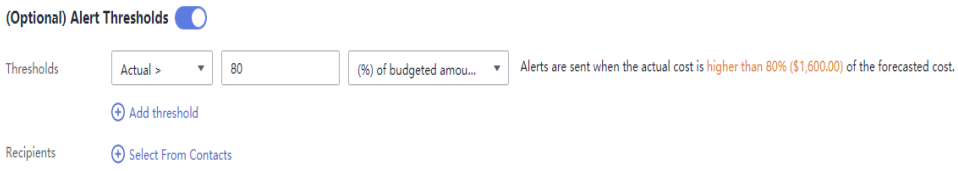


Figure 10-5 Budget alerts



For details, see **Enabling Forecasting and Creating Budgets to Track Cost and Usage**.

- **Resource optimization**

  Cloud Eye helps you monitor resource usage, identify idle resources, and find opportunities to save costs. You can also identify resources with high costs based on the analysis result in the cost analysis phase, and then take optimization measures accordingly.

  – Monitor resource usage and evaluate whether the current configuration is too high. for example, monitor the usage of CPU, memory, cloud disks, and bandwidth.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

  - Detect idle resources to avoid waste. For example, detect unattached EVS disks and unbound EIPs.

- **Billing mode selection**

  Different types of services have different requirements on resource usage periods and therefore require different billing modes to achieve the optimal outcome.

  - For mature services that are stable for a long time, use the yearly/monthly billing mode.
  - For short-term, unpredictable services that experience traffic bursts and cannot be interrupted, use pay-per-use billing.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.

11 FAQs

11.1 Why Is the Price Not Displayed During MRS Cluster Creation?

When you are purchasing an MRS cluster, the price displayed at the bottom of the page will not include disk cost if you specify only the number of disks without configuring the instance count. The price will include the disk cost after you configure both the number of disks and instance count.

11.2 How Is the Task Node in an MRS Cluster Billed?

Task nodes in a cluster are billed in pay-per-use mode, regardless of the cluster billing mode. That is, they are billed per hour based on the actual usage duration.

11.3 Why Does My Unsubscription from ECS Fail After I Unsubscribe from MRS?

1. Check that the ECS ID is not used by an MRS cluster in use.
2. On the ECS console, find the ECS to be unsubscribed from and click **Locked by MRS** to unlock it.
3. Click **Unsubscribe** again.
4. If the unsubscription still fails, collect the ECS ID and contact Huawei Cloud technical support.

 Copyright © Huawei Cloud Computing Technologies Co., Ltd.