Graph Engine Service

Billing

Issue   01

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Contents

1 Billing Overview

In this document, you can quickly learn about the main billing information of Graph Engine Service (GES), including its billing modes, billed items, renewal, and arrears.

- **Billing Modes**

  GES offers two billing modes: yearly/monthly and pay-per-use, to meet the needs of different users in various scenarios.

  - Yearly/Monthly: It is a prepaid model where payment is made before usage, and settlement is based on the purchase period of the order. So, you must ensure that your account balance is sufficient before making a purchase.

  - Pay-per-use: It is a postpaid model where payment is made after usage, and billing is based on the actual usage duration of the graph instance.

    For more detailed information on these two billing modes, refer to **Overview**.

- **Billed Items**

  The billed items for GES include graph specifications (number of edges), data storage space, and public network bandwidth fees. To learn about the billing factors and formulas for each billed item, refer to **Billing Items**.

  For examples of billing scenarios and cost calculations for each billed item under different billing modes, see **Billing Examples**.

- **Renewing Subscriptions**

  Yearly/Monthly graph instances cannot run after their subscription expires. If you want to continue using the service, you need to renew within the specified time. Otherwise, resources such as compute and storage will be automatically released, and data may be lost.

  Renewal includes manual and automatic renewal, and you can choose according to your needs. For more information on renewal, see **Overview**.

- **Viewing Bills**

  You can choose **Billing & Costs** > **Bills** to check the graph instance transactions and bills. For details, see **Bills**.

- **Arrears**

  When the available balance of an account is less than the unsettled bill, the account is considered to be in arrears. After arrears, it may affect the normal

operation of cloud service resources, and timely recharge is required. For more information, refer to **Arrears**.

- **Stopping Billing**

  When cloud service resources are no longer in use, they can be unsubscribed or deleted to avoid further charges. For more information, refer to **Billing Termination**.

2 Billing Modes

2.1 Overview

GES offers two billing modes: yearly/monthly (instances are prepaid by month or year) and pay-per-use, to meet the needs of different users in various scenarios.

- Yearly/Monthly: a prepaid mode where payment is made in advance and billed according to the subscription term. The longer the subscription term, the greater the discount. This mode is generally suitable for mature businesses with long-term stable equipment needs.

- Pay-per-use: a postpaid mode where payment is made after usage, billed according to the actual usage time of graph instances, with billing calculated by the second and settled hourly. The pay-per-use mode allows you to flexibly adjust resource usage based on actual business needs, without the need to pre-set resources, thereby reducing the risk of over or under provisioning. This mode is typically suitable for scenarios with sudden traffic bursts, such as e-commerce flash sales.

Table 2-1 compares the two billing modes.

Table 2-1 Differences between billing modes

Billing Mode	Yearly/Monthly	Pay-per-Use
Payment	Prepaid	Postpaid
Billed Usage Period	Billed by the subscription term you purchase	Billed by the second and settled hourly
Billed Items	Graph specifications (number of edges), data storage space, and public network bandwidth	Graph specifications (number of edges), data storage space, and public network bandwidth
Changing the Specifications	Supported	Supported

Application Scenarios	For scenarios where resource usage can be predicted, this pricing mode is more cost-effective than pay-per-use. This mode is recommended for long-term users.	For scenarios where there are fluctuations in compute resource demand, this mode allows for easy control over your resources.

2.2 Yearly/Monthly Billing

Yearly/Monthly is a prepaid billing mode that is suitable for users with stable instance needs who want to reduce costs. This mode offers larger discounts compared to the pay-per-use mode, saving 34% to 47% of costs, and is suitable for customers planning to use the service long-term. By choosing the yearly/monthly billing mode, you can purchase a graph size (number of edges) in advance and receive a certain degree of price discount. This section will introduce the billing rules for GES resources under the yearly/monthly pricing mode.

Application Scenarios

The yearly/monthly billing mode requires users to pay for a certain duration in advance and is suitable for long-term, stable business needs. Here are some business scenarios that are suitable for this mode:

- Stable business needs: For businesses that require long-term operation and have relatively stable instance needs, such as scenarios that require long-term use and query analysis of graph instances, the yearly/monthly billing mode can provide higher cost-effectiveness.

- Long-term projects: For projects with a long cycle, the yearly/monthly billing mode can ensure stable resource usage throughout the entire project cycle.

Billed Items

Graph size (edges) supports yearly/monthly billing.

Billed Usage Period

The billing cycle for yearly/monthly resources is determined based on the duration you purchase (UTC+08:00). The start of a billing cycle is the time you enable or renew the resource (accurate to the second), and the end is 23:59:59 on the expiration date. For example, if you purchase a graph with a duration of one month on March 8, 2023, at 15:50:04, the billing cycle is from March 8, 2023, 15:50:04 to April 8, 2023, 23:59:59.

Billing Examples

Assume that you purchased a yearly/monthly million-edge graph on March 8, 2023, at 15:50:04. The subscription term is one month, and you manually renew it for one month before expiration. Then:

The first billing cycle is from March 8, 2023, 15:50:04 to April 8, 2023, 23:59:59. The second billing cycle is from April 8, 2023, 23:59:59 to May 8, 2023, 23:59:59. You need to pay in advance for each billing cycle, and the billing formula is shown as **Table 2-2**.

Table 2-2 Billing formula

Resource Type	Formula	Unit Price
Graph size (edges)	Graph unit price x Quantity x Subscription term	For details, see the price for a specific graph size in **GES Pricing Details**.

The fee in the preceding example is calculated as follows:

Yearly/Monthly fee for a million-edge graph = 3,000 x 1 x 2 = 6,000 CNY

> **NOTICE**
>
> The prices are for reference only. Actual prices are subject to those in **GES Pricing Details**.

Price Change After Specification Change

If the specifications of your yearly/monthly ECSs do not meet your business needs, you can initiate a change in specifications operation on the GES console. The system will calculate the change fee for you according to the following rules:

- Upgrade: If the new configuration price is higher than the old configuration price, you need to pay the difference between the new and old configurations.
- Downgrade: If the new configuration price is lower than the old configuration price, Huawei Cloud will refund the difference between the new and old configurations to you.

Downgrading resources may affect the performance of your instances, so it is generally not recommended. Here's an example of upgrading resources without any discounts: Suppose you created a one-million-edge graph on April 8, 2023, with a subscription term of one month, and plan to change the size to 10-million-edge on April 18, 2023. The old configuration price is 3,000 CNY/month, and the new configuration price is 7,000 CNY/month. The calculation formula is as follows:

Upgrade fee = New configuration price x Remaining period – Old configuration price x Remaining period

The remaining period in the formula is the number of days remaining in each calendar month divided by the maximum number of days in that month. In this example, the remaining period is 12 (remaining days in April)/30 (maximum days in April) + 8 (remaining days in May)/31 (maximum days in May) = 0.6581. Substituting this value into the formula, the upgrade fee is 7,000 x 0.6581 – 3,000 x 0.6581 = 2,632.4 CNY.

For more information, refer to **Pricing of a Changed Specification**.

Impact of Expiration

Figure 2-1 shows the statuses a yearly/monthly GES graph can go through throughout its lifecycle. After purchasing a GES graph, it will run normally during the billing cycle, which is the validity period. If the graph expires and is not renewed, it will gradually enter the grace period and retention period.

Figure 2-1 Lifecycle of a yearly/monthly GES graph
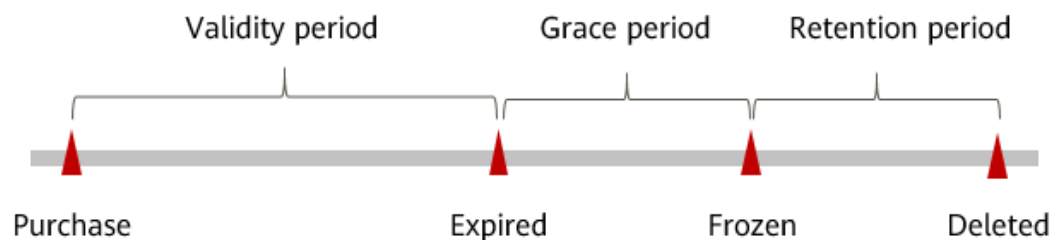
Expiration Reminder

For yearly/monthly GES graphs, the system will send an expiration warning message to the user seven days before the expiration date via email, SMS, and in-app message to the Huawei Cloud account creator.

Impact of Expiration

When your yearly/monthly GES graph expires and is not renewed, it will first enter the grace period, and the resource status will change to **Expired**. During the grace period, you can still access the graph instance, but the following operations will be restricted:

- Changing the graph size
- Switching from yearly/monthly to pay-per-use
- Unsubscription

If you still do not renew the yearly/monthly graph during the grace period, it will enter the retention period, and the resource status will change to **Frozen**. You will not be able to perform any operations on the yearly/monthly graph in the retention period.

After the retention period expires, if the yearly/monthly graph is still not renewed, the graph instance will be released, and the data cannot be recovered.

📖 **NOTE**

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

2.3 Pay-per-Use Billing

Pay-per-use is a billing mode where users are billed only for what they use, without the need for any upfront payment or long-term commitment. This section describes the billing rules for pay-per-use graphs.

Application Scenarios

Pay-per-use is suitable for applications or services that require uninterrupted, short-term, sudden spikes, or unpredictable usage, such as e-commerce flash sales, temporary testing, and scientific computing.

Billed Items

You are billed based on pay-per-use for the following resources.

Table 2-3 Billed items

Billed Item	Description
Graph size (edges)	• You are billed based on the number of edges you select. • Two billing modes are available for edge billing: prepaid instances and pay-per-use (hourly).
(Optional) Data storage space	GES data can be uploaded or exported through Object Storage Service (OBS), and storage fees are charged according to OBS billing rules.For more details, see **OBS Pricing Details**.
(Optional) Public network traffic	GES supports bindings to public IP addresses, and the required fees are charged according to the Elastic IP (EIP) billing rules of Virtual Private Cloud (VPC). Traffic generated by GES within the Huawei Cloud's internal network is not charged.
(Optional) Public network bandwidth	If a graph instance is purchased with an EIP billed by bandwidth, the bandwidth is also billed on a pay-per-use basis.

Assume that you plan to purchase a million-edge graph. At the bottom of the purchase page, you will see the required fees, as shown in **Figure 2-2** (excluding storage space, public network traffic, and public network bandwidth).

Figure 2-2 Example price

Estimated Price **USD 1.25** Details

You can click **Details** next to it to view the details.

Figure 2-3 Price details

Details			×
Item	Specifications	Units	Price
Billing Item	Million-edge	1 hour, *1	USD 1.25

OK

Billed Usage Period

Pay-per-use billing for the graph (number of edges) is calculated per second and settled once every hour on the hour (UTC+08:00). The billing cycle starts from the time the GES graph instance is successfully created and ends at the time the instance is deleted.

📖 **NOTE**

> It takes some time for the graph instance to be created successfully, and the billing cycle starts from the time of successful creation, not the time when the creation process begins. You can view the time of successful creation of the graph instance on the GES console.

For example, if you successfully create a pay-per-use million-edge graph at 08:45:30 and then delete it at 08:55:30, the billing cycle is from 08:00:00 to 09:00:00, and the billing duration within the cycle is from 08:45:30 to 08:55:30, which is 600 seconds.

Billing Examples

Suppose you create a pay-per-use million-edge graph on April 18, 2023, at 09:59:30 and then delete it at 10:45:46 on the same day:

- The first billing cycle is from 09:00:00 to 10:00:00, and the billing duration within the cycle is from 09:59:30 to 10:00:00, which is 30 seconds.
- The second billing cycle is from 10:00:00 to 11:00:00, and the billing duration within the cycle is from 10:00:00 to 10:45:46, which is 2,746 seconds.

You need to pay for each billing cycle separately, and Object Storage Service (OBS), public network bandwidth, and other services are billed separately. The billing formula is listed in **Table 2-4**. The hourly price of the resources is listed in the product price details, and you need to divide the hourly price by 3,600 to get the price per second.

Table 2-4 Billing formula

Resource Type	Billing Formula	Unit Price
Graph size (edges)	Unit price of the graph instance x Billing duration	For details, see the price for a specific graph size in **GES Pricing Details**.

The fee in the preceding example is calculated as follows:

Pay-per-use price for the million-edge graph = 6.25 CNY/hour x ((30 + 2,746)/ 3,600) hours = 4.81 CNY

Price Change After Specification Change

If you modify the configuration of a pay-per-use instance after purchasing it, a new order will be generated and billed at the new configuration's price, while the old order will be automatically invalidated.

If you make configuration changes within an hour, multiple billing records will be generated, each corresponding to the effective time of a different configuration during that hour.

For example, if you purchase a pay-per-use million-edge instance at 09:00:00 and upgrade it to a 10-million-edge graph at 09:30:00, two billing records will be generated between 09:00:00 and 10:00:00.

- The first record corresponds to 09:00:00 to 09:30:00, and the instance is billed at the million-edge rate.
- The second record corresponds to 09:30:00 to 10:00:00, and the instance is billed at the 10-million-edge rate.

Impact of Arrears

Figure 2-4 shows the statuses a pay-per-use GES graph can have throughout its lifecycle. During the billing cycle, resources operate normally, which is the validity period after purchase. If your account goes into arrears due to automatic deduction of pay-per-use GES resources, your account will enter an arrears state, and resources will gradually enter a grace period and retention period.

Figure 2-4 Lifecycle of a pay-per-use graph
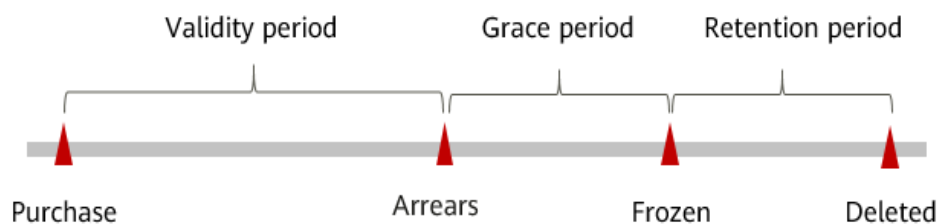
Arrears Reminder

The system will deduct fees from pay-per-use resources after each billing cycle. When your account balance becomes negative, we will notify the creator of the Huawei Cloud account via email, SMS, or in-app message.

Impacts of Arrears

If your account goes into arrears due to automatic deduction of pay-per-use GES resources, your account will enter an arrears state. There are three stages to this state:

1. After arrears, pay-per-use resources will not immediately stop operating, but will enter a grace period. You need to pay for the costs incurred during the grace period, which can be viewed under **Billing Center** > **Overview**. Huawei Cloud will automatically deduct the arrears amount when you top up your account.

2. If you still have not paid the arrears during the grace period, you will enter the retention period, and the resource status will change to **Frozen**. You will not be able to perform any operations on pay-per-use resources in the retention period.

3. After the retention period expires, if you still have not paid the account arrears, the graph instance will be released, and any added graph data will not be recoverable.

Billing for a Stopped Graph

In the pay-per-use billing mode, fees are deducted hourly as long as the instance is in a running state. As long as your account has sufficient balance, the service will continue to be used by default. To save costs, we recommend two options:

- If you are not using the instance for a period of time, you can stop it and restart it when needed.

- Switch from pay-per-use to yearly/monthly billing, which allows you to use the service within the specified time period without incurring additional fees.

3 Billing Items

GES bills you for the graph size (edges), data storage space, and public network traffic you use, which is simple and predictable.

Table 3-1 GES billed items

Billed Item	Description
Graph size (edges)	- You are billed based on the number of edges you select. - Two billing modes are available for edge billing: prepaid instances and pay-per-use (hourly).
Data storage space	GES data can be uploaded or exported through Object Storage Service (OBS), and storage fees are charged according to OBS billing rules.For more details, see **OBS Pricing Details**.
Public network traffic	GES supports bindings to public IP addresses, and the required fees are charged according to the Elastic IP (EIP) billing rules of Virtual Private Cloud (VPC). Traffic generated by GES within the Huawei Cloud's internal network is not charged.

For details about GES billing details and examples, see **GES Pricing Details**. You can use the GES price calculator to quickly calculate the estimated cost of creating a graph instance with the size you need.

4 Billing Examples

Billing Scenario 1

A user purchased a million-edge GES graph billed in pay-per-use mode at 16:00:00 on August 8, 2023. After using it for some time, the user deleted the graph at 16:00:00 on August 22, 2023. How much did the graph cost in total?

Billing Analysis

The graph was billed according to the million-edge graph specifications from 16:00:00 on August 8, 2023 to 16:00:00 on August 22, 2023, with a unit price of 6.25 CNY/hour and a billing duration of 336 hours. The cost is calculated as follows:

6.25 CNY/hour x 336 hours = 2,100 CNY

Therefore, the total cost of the GES graph instance is 2,100 CNY.

Billing Scenario 2

A user purchased a billion-edge graph billed in pay-per-use mode at 14:00:00 on August 18, 2023. After using it for some time, the user found that the current specifications could not meet their business needs and expanded the graph by adding one replica for the graph instance at 10:00:00 on August 20, 2023. The user deleted the graph at 18:00:00 on August 30, 2023. How much did the graph instance cost in total?

Billing Analysis

The pay-per-use billing is divided into two stages: single replica billing from August 18, 2023, at 14:00:00 to August 20, 2023, at 10:00:00, and double replica billing from August 20, 2023, at 10:00:00 to August 30, 2023, at 18:00:00.

Time	2023/08/18 14:00:00 ~ 2023/08/20 10:00:00	2023/08/20 10:00:00 ~ 2023/08/30 18:00:00
Replicas	1	2
Graph size	Billion-edge	Billion-edge
Unit price	60 CNY/hour	120 CNY/hour

Billing duration	44 hours	248 hours
Total cost	60 CNY x 44 hours = 2,640 CNY	120 CNY x 248 hours = 29,760 CNY

Total cost of the graph instance:

2,640 + 29,760 = 3,2400 CNY

Billing Scenario 3

A company needs to use GES service for graph storage and queries. The graph size is ten-million-edge, and the planned usage duration is one month (30 days). The company wants to know which billing mode is the most cost-effective.

Billing Analysis

The table below describes the details of pay-per-use billing and yearly/monthly billing.

Billing Mode	Formula	Payment Period	Unit Price	Usage Duration	Cost
Pay-per-use	Unit price x Usage duration	Hourly	15 CNY/hour	720 hours	15 CNY x 720 hours = 10,800 CNY
Yearly/Monthly		Monthly	7,000 CNY/month	1 month	7,000 CNY x 1 month = 7,000 CNY

In conclusion, using annual/monthly billing will save you a lot of costs. The longer the purchased duration, the more discounts you can get.

📖 **NOTE**

Unit prices in this example are used for reference only. The prices shown here are only estimates. As unit prices change from time to time, the prices shown here will differ from actual ones. For details, see the data released on the Huawei Cloud official website.

The current cost does not include OBS storage space fees, public network traffic fees, and public network bandwidth fees. Refer to the billing standards of the relevant services for specific fees.

5 Renewing Subscriptions

5.1 Overview

When to Renew Subscriptions

Currently, GES offers both yearly/monthly and pay-per-use billing modes.

- For the yearly/monthly mode, you make a one-time payment upon purchase and will not be charged any additional fees during usage. When the yearly/ monthly package expires, the resources will enter a grace period and then a retention period. If you wish to continue using the service, renew in a timely manner. For more details, refer to **Resource Expiration Rules**.

- For the pay-per-use mode, fees are deducted on an hourly basis as long as there is sufficient balance in your account. If the account balance is insufficient, it will result in arrears, so top up your account in a timely manner before that happens.

How to Renew Subscriptions

Table 5-1 lists the method of renewing a yearly/monthly graph instance.

Table 5-1 Renewal method

Method	Description
Manually Renewing a Graph Instance	You can renew a yearly/monthly graph instance anytime on the management console before it is automatically deleted.

During the different stages of the lifecycle of a yearly/monthly GES instance, you can choose a renewal method as needed.

Figure 5-1 Lifecycle of a GES graph instance
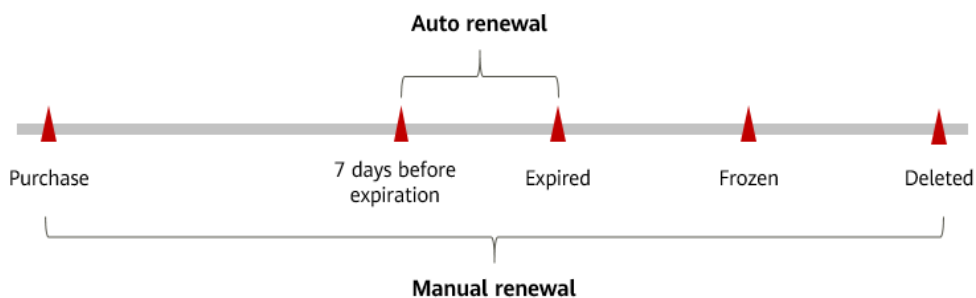
- After purchase, the graph instance is in the **Running** state.

- When the subscription expires, the status changes to **Expired**.

- If you do not renew before expiration, the graph instance will first enter a grace period. If it is still not renewed after the grace period, the resource status will change to **Frozen**.

- If you do not renew the subscription before the retention period expires, your resources will be automatically deleted.

5.2 Manually Renewing a Graph Instance

For a prepaid graph instance, you can extend the usage time of the instance by renewing the graph size (number of edges) in the Billing Center before it is automatically deleted.

Renewing a Subscription in Billing Center

Step 1 Go to the **Billing > Renewal** page.

Step 2 Set the search criteria.

You can view all resources to be renewed on the **Manual Renewals**, **Auto Renewals**, **Pay-per-Use After Expiration**, and **Renewals Canceled** pages, and manually renew the resources.
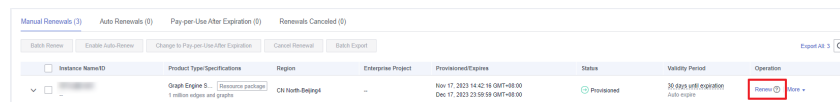
Figure 5-2 Renewals
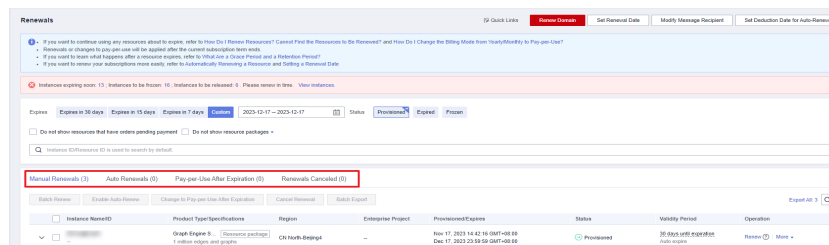
All resources that need to be manually renewed can be placed on the **Manual Renewals** tab page. For details, see **Restoring to Manual Renewal**.
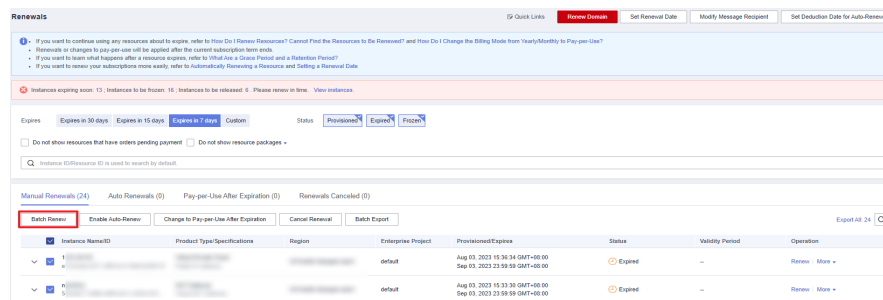
Step 3 Manually renew resources.

- Individual renewal: Click **Renew** in the **Operation** column for the desired resource.

Figure 5-3 Individual renewal

- Batch renewal: Check the boxes for the desired resources, and click **Batch Renew** in the upper left corner.

Figure 5-4 Batch renewal

Step 4 Select a renewal duration and optionally select **Renew on the standard renewal date**. For details, see **Setting the Same Renewal Day for Yearly/Monthly Resources**. Confirm the price and click **Pay**.

Figure 5-5 Confirming renewal
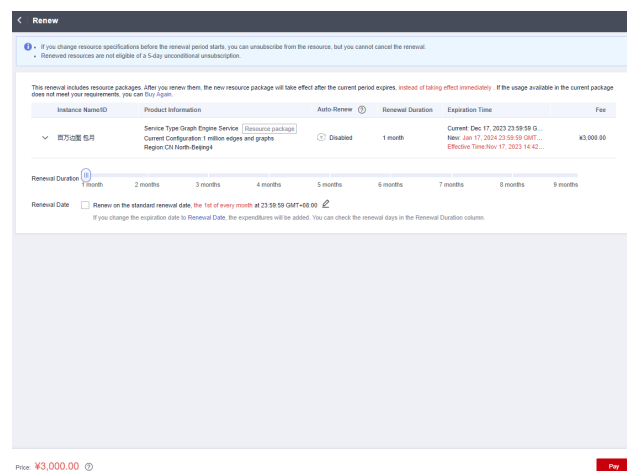
Step 5 Select a payment method and confirm the payment. After you pay the order, the renewal is complete.

----End

Setting the Same Renewal Day for Yearly/Monthly Resources

If you have multiple GES graph instances with different expiration dates, you can set a fixed expiration date to facilitate routine management and renewal.

Figure 5-6 illustrates the comparison of renewing two resources with different expiration dates for an additional month and setting a fixed renewal date for them.

Figure 5-6 Setting a fixed renewal date
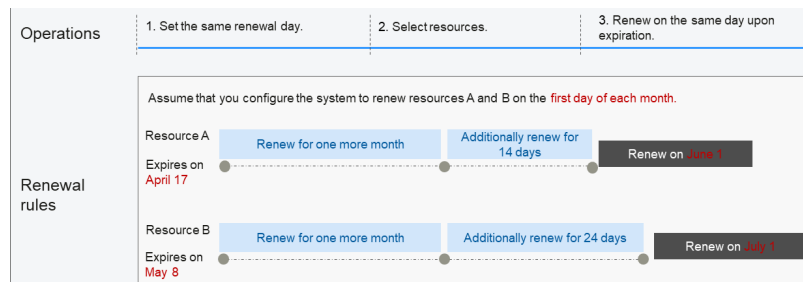
For details, see **Setting a Renewal Date**.

5.3 Auto-renewing a Graph Instance

Auto-renewal can prevent ECSs from being automatically deleted if you forget to manually renew them. The auto-renewal rules are as follows:

- The auto-renewal period of graph instances follows different rules depending on the way you activate auto-renewal.

- Auto-renewal can be activated at any time before the graph instance expires. The first attempt to automatically renew will be made at 03:00:00, 7 days before the expiration date. If the payment fails, an attempt will be made every day at 03:00:00 until the graph instance expires or the renewal is successful.

- After activating auto-renewal, you can still manually renew the graph instance. The auto-renewal will still be in effect after manual renewal, and payment will be deducted starting from 7 days before the new expiration date.

- The automatic deduction 7 days before the expiration date is a default setting of the system, but you can modify it according to your needs, such as changing it to 6 days or 5 days before the expiration date.

Learn about **Auto-Renewal Rules** before enabling auto-renewal.

Prerequisites

Your yearly/monthly graph instance has not expired.

Enabling Auto-Renewal on the Renewals Page

Step 1 Go to the **Billing > Renewal** page.

Step 2 Set the search criteria.

- You can view the resources for which auto-renewal has been enabled on the **Auto Renewals** page.

- On the **Manual Renewals**, **Pay-per-Use After Expiration**, and **Renewals Canceled** pages, you can enable auto-renewal for resources.
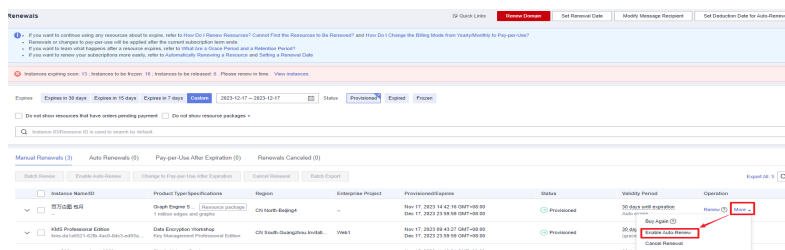
Figure 5-7 Renewals
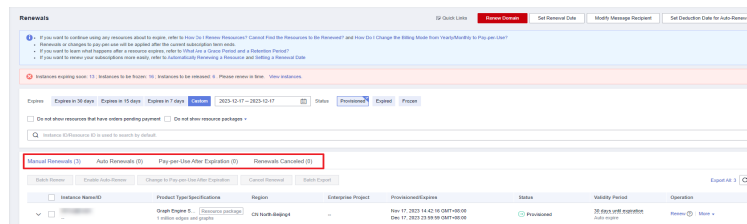
**Step 3** Enable auto-renewal for yearly/monthly resources.

- Separate auto-renewal: Choose **More** > **Enable Auto-Renew** in the **Operation** column for the desired graph instance.

Figure 5-8 Enabling auto-renewal for a single resource

- Batch auto-renewal: Select the desired graph instances and click **Enable Auto-Renew** above the list.

Figure 5-9 Enabling auto-renewal for multiple resources
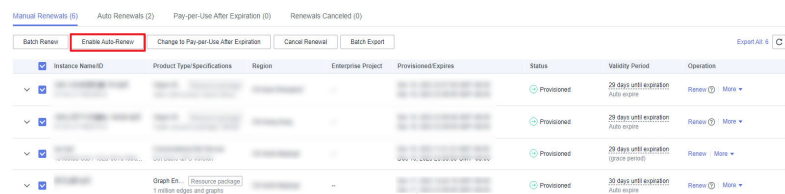
Step 4 Select a renewal period, specify the auto-renewal times, and click **Pay**.

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 choose to renew for 3 months with unlimited renewals, it will automatically renew for 3 months before each expiration.

Figure 5-10 Enabling auto-renewal
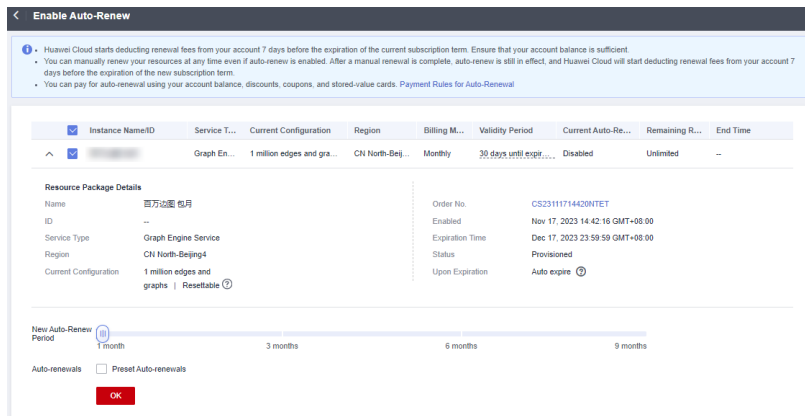
----End

6 Bills

You can view the resource usage and bills for different billing cycles on the **Bills** page in the Billing Center.

Bill Generation

Transaction records for yearly/monthly subscriptions are generated immediately after being paid for.

- The usage of pay-per-use resources is reported to the billing system at a fixed interval. Pay-per-use resources are settled in fixed cycles based on usage reported to the billing system. Depending on the type of usage, pay-per-use products are settled on an hourly, daily, or monthly basis. Pay-per-use graph instances are settled on an hourly basis.

- The billing time for pay-per-use resources may be delayed compared to the settlement cycle. For example, if a GES graph instance settled on an hourly basis is deleted at 08:30:00, the fees generated between 08:00:00 and 09:00:00 are usually charged around 10:00:00. On the **Billing Center** > **Billing** > **Transactions and Detailed Bills** > **Transaction Bills** page, **Expenditure Time** indicates the time when a pay-per-use product is used.
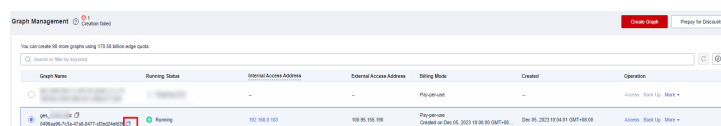
Viewing Bills of a Specific Resource

Example 1: Use the graph resource ID to search for the bill. The graph resource ID is the same as that in the bill.

Step 1 Log in to the GES management console. In the navigation pane on the left, choose **Graph Management**.

Step 2 Click the icon shown in the figure below to copy the graph ID.

Figure 6-1 Obtaining the resource ID

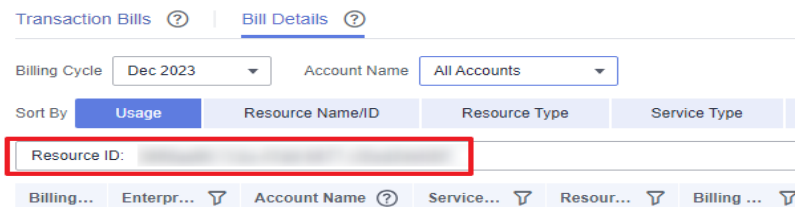**Step 3** Choose **Billing > Transactions and Detailed Bills**.

Step 4 Select **Resource ID** as the filter, paste the resource ID obtained in **Step 2**, and click

 🔍 .

Figure 6-2 Searching for a bill

By default, the bill details are displayed by usage and billing cycle. You can choose other display options as required. For details, see **Usage Details**.
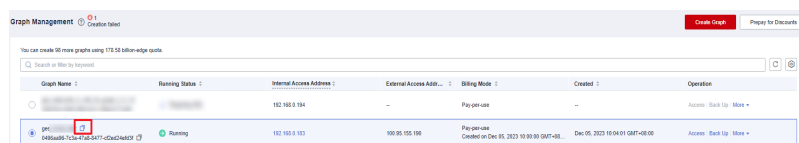
----End

Example 2: Use the resource name to search for a bill.

Step 1 Log in to the GES management console. In the navigation pane on the left, choose **Graph Management**.

Step 2 Click the icon shown in the figure below to copy the graph instance name.

Figure 6-3 Obtaining a graph instance name

Step 3 Choose **Billing > Transactions and Detailed Bills**.

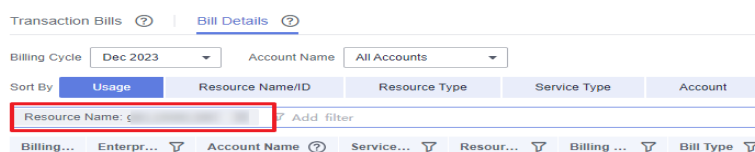**Step 4** Select **Resource Name** as the filter, paste the resource name obtained in **Figure 6-4**, and click 🔍 .

Figure 6-4 Searching for a bill

For details, see **Usage Details**.

----End

Checking the Consistency of the Actual Usage and Billed Usage

Suppose you created a million-edge graph instance at 14:12:00 on September 20, 2023 and deleted it at 16:52:20 on the same day.

● GES transactions

Pay-per-use graph instances are billed by the second and settled hourly. You can check that the information about each billing cycle matches the actual usage. See **Table 6-1**.

Table 6-1 Graph size (edges) transaction bill

Product	Graph Engine Service (GES)
Specification	Graph size (edges)
Billing mode	Pay-per-use
Expenditure time	From 14:12:00 on September 20, 2023 to 16:52:20 on the same day, 3 transaction bills were generated: ● 2023/06/19 14:12:02 ~2023/06/19 15:00:00 ● 2023/06/19 15:00:00 ~ 2023/06/19 16:00:00 ● 2023/06/19 16:00:00 ~ 2023/06/19 16:52:20
List price	List price on the official website = Usage x Unit price In this example, the usage of the graph instance in the first billing cycle is 2,878 seconds. The unit price can be found in **GES Pricing Details**, for example, at a rate of 6.25 CNY/hour. Therefore, the list price on the official website is calculated as follows: (2,878 ÷ 3,600) hours x 6.25 CNY/hour = 4.9965278 CNY. Similarly, you can calculate the list price for the other periods.
Discount amount	You can enjoy discounts on cloud services, such as business discounts, partner-authorized discounts, and promotional discounts. The discount amount is based on the list prices.
Truncated amount	The pricing accuracy of Huawei Cloud products is up to 8 decimal places (in CNY). Therefore, during the billing process, there will be resource usage fees with 8 decimal places. However, in actual billing, only 2 decimal places will be deducted, and the amount from the 3rd to the 8th decimal place will be rounded down. This rounded-down amount is called the truncated amount. Taking the first billing cycle as an example, the truncated amount is 0.0065278 CNY.
Amount due	Amount due = List price – Discount amount – Truncated amount Take the first billing cycle as an example. If the discount amount is 0, the amount due is 4.99 CNY (4.9965278 – 0 – 0.0065278).

● GES bill details

  Bill details can be displayed in multiple ways. By default, the bill details of a resource are displayed by usage and by billing cycle. You can check bill details by referring to **Table 6-2**.

Table 6-2 Graph size (edges) bill details

|	
Product	Graph Engine Service (GES)
Specification	Graph size (edges)
Billing mode	Pay-per-use
Resource name/ID	Name and ID of a graph instance Example: ges-0001, 70fd9db0-5e13-41af-8d2c-ee4a1858b13f
Size	Graph instance size (edges)
Usage type	Instance
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. Pay-per-use billing is simple pricing. You can query the unit price in **GES Pricing Details**.
Price unit	The price unit queried in **GES Pricing Details** is CNY/GB/hour.
Total usage	The usage is displayed by the price unit, which is CNY/GB/hour for EVS. Therefore, the EVS usage is measured by hour. For example, the total usage from 10:09:06 on April 08, 2023 to 12:09:06 on the same day is 2 hours.
Usage unit	Hour
List price	List price on the official website = Usage x Unit price In this example, the usage is 2 hours, and the unit price can be queried in **GES Pricing Details**. For example, if the unit price is 6.25 CNY/instance/hour, the list price is 12.50 CNY (2 x 6.25).
Discount amount	You can enjoy discounts on cloud services, such as business discounts, partner-authorized discounts, and promotional discounts. The discount amount is based on the list prices.
Amount due	Amount that you need to pay after enjoying discount offers on cloud services

7 Arrears

If your account balance is less than the pending bill when using cloud services, your account will be considered in arrears. This may affect the normal operation of your cloud service resources, so top up your account promptly.

Arrears Reason

If you do not have any resource packages, your account falls into arrears any time once your configured payment method is unable to pay for the used resources on a pay-per-use basis.

Arrears Impact

- Yearly/Monthly

  This is a pre-paid billing mode, so you can continue using yearly/monthly GES instances even if your account is in arrears. However, for operations involving fees, such as purchasing new graph instance, upgrading the graph size, renewing orders, you will not be able to proceed normally.

- Pay-per-use

  If your account is insufficient to pay your amount due, your account goes into arrears and your resource enters the grace period.

  After arrears, pay-per-use resources will not immediately stop operating, but will enter a grace period. After you top up your account, Huawei Cloud will bill you for expenditures generated by the OCR services during the grace period. You can view the expenditures on the **Overview** page of the Billing Center.

  If you still have not paid the arrears during the grace period, you will enter the retention period, and the resource status will change to **Frozen**. You will not be able to perform any operations on pay-per-use resources in the retention period.

  If you do not bring your account balance current before the retention period ends, the compute resources (vCPUs and memory), EVS disks, and EIPs will be released and the data cannot be restored.

Figure 7-1 Lifecycle of a pay-per-use ECS
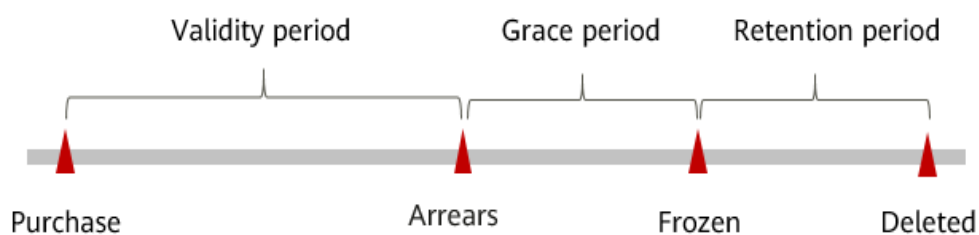
Avoiding and Handling Arrears

You need to top up your account in a timely manner.

To avoid incurring extra costs, you are advised to stop or delete any graph instances that are no longer needed.

To avoid account arrears, set up **Balance Alert** on the Billing Center's **Overview** page. This way, the system will send you an SMS or email notification whenever your spending drops below the threshold you specify.

If your account falls into arrears, top up it promptly to ensure that your available balance is greater than zero. If your business requires a stable amount of resources, you can purchase yearly/monthly packages to offset the corresponding resource costs and save usage expenses. For details, see **Yearly/Monthly Billing**.

8 Billing Termination

Yearly/Monthly Resources

You pay for a yearly/monthly graph instance when you purchase it. Billing automatically stops when the subscription expires.

If you no longer need a resource, but the subscription has not yet expired, you can unsubscribe from it. Depending on what coupons were used for the purchase and on if 5-day unconditional unsubscription rules apply, Huawei Cloud may issue you a refund.

Pay-per-Use Resources

If a pay-per-use graph instance is no longer needed, you can delete it to stop billing. Note that stopping a running graph instance will only stop the charges for the basic resource graph size (number of edges), but charges for graph data stored in OBS buckets and public network bandwidth will continue. Therefore, deleting the graph instance is necessary to avoid incurring further costs.

Searching for Resources from Bills and Stopping Billing

To ensure that all related resources are deleted, you can search the billing records by resource ID, and then delete the resources you identify in this way. Follow these operations:

1. Log in to the management console. On the top menu bar, choose **Billing & Costs** > **Bills**.

2. Choose **Transactions and Detailed Bills**, click the **Bill Details** tab, and then click the icon shown in the figure below to copy the resource ID.

Figure 8-1 Copying a resource name
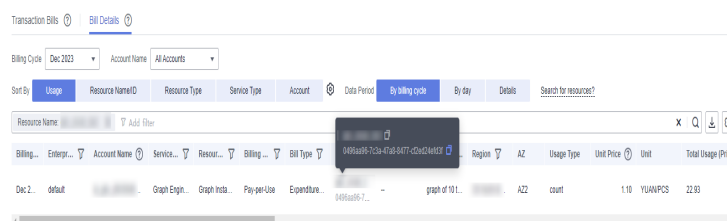
3. On the GES management console, choose **Graph Management**. On the page displayed, paste the copied resource ID, search for the graph instance corresponding to the resource ID, and delete or stop the graph. Make sure that the instance does not exist in the list.

📖 NOTE

You are billed one hour after the resource usage is calculated, so a bill may still be generated after the pay-per-use resource is deleted. For example, if you delete a graph instance (which is billed on an hourly basis) at 08:30:00, the expenditures for the hour from 08:00:00 to 09:00:00 are usually not billed until around 10:00:00.

9 Cost Management

As more and more businesses move to the cloud, they are increasingly concerned about the cost of using cloud services. When using the GES service, how can businesses manage costs and reduce the burden on their operations? This section will introduce cost management from four dimensions: cost composition, cost allocation, cost analysis, and cost optimization. It will help you save costs through cost management while ensuring rapid business development and maximizing cost benefits.

Cost Composition

When using GES, costs mainly include two aspects:

- Resource cost: cost of each type of resource, which depends on the billed items of graph instances. For details, see **Billing Items**.
- O&M costs: the labor costs generated during the use of GES.

Cost Allocation

The foundation of cost management is to establish a cost responsibility system, allowing each department, business team, and owner to participate and take responsibility for the costs incurred by their consumption of cloud services. Businesses can allocate cloud costs by grouping them and assigning them to specific teams or project businesses, enabling each responsible organization to understand their cost situation in a timely manner.

Huawei Cloud Cost Center supports cost allocation and redistribution through various methods. You can choose the appropriate allocation tool according to your needs.

- **By linked account**

  An enterprise master account can use associated accounts to collect the costs of member accounts and manage their finances. For details, see **Viewing Costs by Linked Account**.

- **By enterprise project**

  Before allocating costs, it is recommended to enable enterprise projects and plan them accordingly, based on the organization structure or business projects of the enterprise. When purchasing cloud resources, select the

designated enterprise project, and new cloud resources will be allocated according to this enterprise project. For details, see **Viewing Costs by Enterprise Project**.

Figure 9-1 Selecting an enterprise project for a graph instance

| AZ | AZ2 | ▼ | ⑦ |
| Enterprise Project | --Select-- | ▼ | C ⑦ Create Enterprise Project |

- **By cost tag**

  Cost tags are labels used Huawei Cloud to categorize cloud resources based on various dimensions such as usage, ownership, or environment. It is recommended that enterprises use predefined tags for cost allocation. The process is as follows:
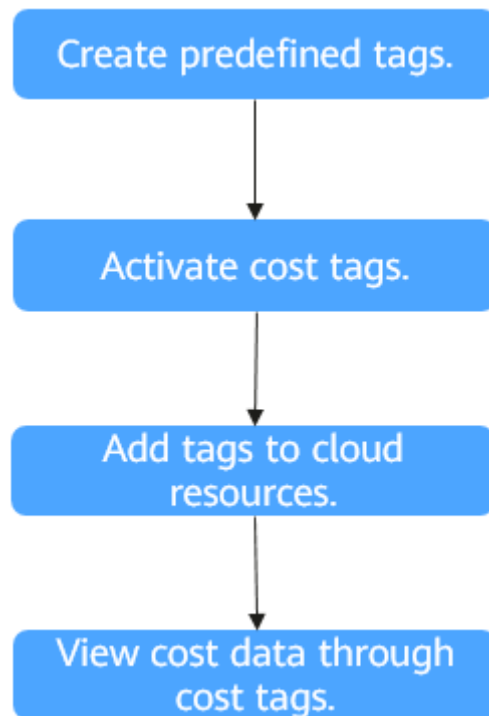

Figure 9-2 Adding a tag to a graph instance

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

- **By cost category**

  You can use **Cost Categories** provided by Cost Center to split shared costs. Shared costs refer to cloud costs generated by compute, network, storage, or resource packages shared by multiple departments, or costs that cannot be

directly allocated to enterprise projects or cost tags. These costs cannot be attributed to a single owner and therefore cannot be assigned to a specific category. By using splitting rules, these costs can be fairly distributed among teams or business units. For details, see **Viewing Cost By Cost Category**.

Cost Analysis

To control and optimize costs, you need to understand which aspects of the organization generate costs. Cost Center supports the visualization of raw and amortized costs through the summary and filtering mechanism of cost analysis, enabling cost and usage trends and driving factors to be analyzed from various perspectives and scopes.

You can also use **Cost Anomaly Detection** provided by Cost Center to detect unplanned expenses in a timely manner, achieving cost visibility, analysis, and traceability.

For details, see **Performing Cost Analysis to Explore Costs and Usage** and **Performing Cost Analysis to Explore Costs and Usage**.

Cost Optimization

If you plan to use resources for an extended period, you are advised to purchase them with yearly/monthly billing, as it is more cost-effective. For resources that are only needed temporarily, it is best to choose pay-per-use to avoid waste.