

# FunctionGraph

# Billing

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# 1 FunctionGraph Billing Overview

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In this document, you will learn about how FunctionGraph is billed, what free tier you are entitled to, how you can view bills, and what happens if your account goes into arrears.

- **Billing Modes**  
FunctionGraph uses the pay-per-use billing mode and requires no minimum charges. **Total price = Price for requests + Price for execution duration + Others.**
- **Billing Items**  
You will be billed for requests, execution duration, and others. For details about the billing factors and formulas for each billing item, see [Billing Items](#).
- **Free Tier**  
FunctionGraph offers a free tier every month, which you can share with your IAM users. For details, see [Free Tier](#).
- **Viewing Bills**  
You can choose **Billing Center > Billing** to check the FunctionGraph transactions and bills. For details, see [Bills](#).
- **Arrears**  
Your account goes into arrears if the balance is less than the bill to be settled. If you want to continue using your FunctionGraph resources, top up your account in a timely manner. For details, see [Arrears](#).
- **Stopping Billing**  
If you no longer need to use your FunctionGraph and related resources, you can unsubscribe from or delete them to stop the billing. For details, see [Billing Termination](#).

## Pricing

For details about FunctionGraph prices, see [FunctionGraph Pricing](#).

# 2 Billing Modes

## 2.1 Overview

FunctionGraph uses the pay-per-use billing mode and requires no minimum charges. **Total price = Price for requests + Price for execution duration + Others.**

For details about the prices of FunctionGraph in different billing modes, see [FunctionGraph Pricing Details](#).

## 2.2 Pay-per-Use Billing

### Application Scenarios

FunctionGraph is suitable for various scenarios, such as real-time file processing, real-time data stream processing, web & mobile application backends, and AI applications.

### Billing Items

The price of FunctionGraph consists of the price for requests, price for execution duration, and other fees. For details about each billing item, see [Table 2-1](#).

**Table 2-1** Billing items

| Billing Item       | Description  |
|--------------------|--|
| Price for requests | Total number of times all of your functions are invoked. |

| Billing Item                                | Description  |
|---|--|
| Execution duration (non-reserved instances) | <p>The execution duration fee depends on the execution duration and memory allocated to the function. The following describes how computing resources are calculated:</p> <p>FunctionGraph calculates the resource consumption of a function by multiplying the selected memory by the execution duration. The execution duration is calculated from the time when your function code starts to execute to the time when it returns a response or terminates. It is rounded up to the nearest 1 ms. If the duration is less than 1 ms, you will be billed for 1 ms.</p>  |
| Execution duration (reserved instances)     | <p>The execution duration fee depends on the execution duration and memory allocated to the function. The following describes how computing resources are calculated:</p> <p>FunctionGraph calculates the resource consumption of a function by multiplying the selected memory by the execution duration. The execution duration is calculated from the time when reserved instances are successfully created to the time when you call an API to release these instances. Reserved instances that stay alive for less than 1 minute will be billed for 1 minute. Those that stay alive for a longer time will be rounded up to the nearest 1s.</p> |
| Other fees                                  | <p>Additional charges will apply if other cloud services, such as OBS and SMN, are used with FunctionGraph. For more information, see <a href="#">FunctionGraph Pricing Details</a>.</p>   |

## Billed Usage Period

You pay only for what you use, and there is no minimum charge. FunctionGraph uses tiered pricing and is billed by day. Fees of a day are deducted after 03:00:00 of the next day. For example, the fees generated between May 11, 2023 00:00:00 and May 11, 2023 23:59:59 were deducted at around 03:00:00 of May 12, 2023.

 NOTE

- "Requests" means the total number of requests for all functions. A request is recorded when a function is executed to respond to an event notification or invocation (including test invocations on the console).
- If no reserved instances are used, the execution duration is calculated from the time when your function code starts to execute to the time when it returns a response or terminates. It is rounded up to the nearest 1 ms. If the duration is less than 1 ms, you will be billed for 1 ms. For example, if function A is executed for 0.5 ms and function B is executed for 2.3 ms, the execution duration of function A is 1 ms and that of function B is 3 ms.
- If reserved instances are used, the execution duration is calculated from the time when instances are successfully created to the time when you call an API to release these instances. Reserved instances are metered by second. Instances that stay alive for less than 1 minute will be billed for 1 minute, and those that stay alive for a longer time will be rounded up to the nearest 1s. For example, if a reserved instance stays alive for 51s, you will be billed for 60s; if an instance stays alive for 60.5s, you will be billed for 61s.

## Impact of Arrears

- **Arrears Reminder**  
The system will bill you for pay-per-use resources after each billing cycle ends. If your account goes into arrears, we will notify you by email, SMS, or internal message.
- **Impacts of Arrears**  
If your account is in arrears due to automatic fee deduction, you cannot create functions or perform any operations on resources.

 NOTE

- For details about top-up, see [Topping Up an Account](#).

# 3 Billing Items

## Billing Description

The billing items of FunctionGraph consist of requests, execution duration, and others. For details, see [Table 3-1](#).

For details about FunctionGraph prices, see [FunctionGraph Pricing Details](#).

**Table 3-1** FunctionGraph billing items

| Billing Item       | Description  | Billing Mode | Formula   |
|--------------------|--|--------------|---|
| Price for requests | Total number of times all of your functions are invoked. | Pay-per-use  | <ul style="list-style-type: none"><li>The first 1,000,000 requests every month are free of charge.</li><li>Billing beyond the free quota = (Total number of requests - 1,000,000) × Unit price per 1,000,000 requests</li></ul> For details about the unit price of requests, see <a href="#">Pricing Details</a> . |



| Billing Item                                       | Description   | Billing Mode       | Formula   |
|--|---|--------------------|---|
| <p>Execution duration (non-reserved instances)</p> | <p>The execution duration fee depends on the execution duration and memory allocated to the function. The following describes how computing resources are calculated:</p> <p>FunctionGraph calculates the resource consumption of a function by multiplying the selected memory by the execution duration. The execution duration is calculated from the time when your function code starts to execute to the time when it returns a response or terminates. It is rounded up to the nearest 1 ms. If the duration is less than 1 ms, you will be billed for 1 ms. For example, if function A is executed for 0.5 ms and function B is executed for 2.3 ms, the execution duration of function A is 1 ms and that of function B is 3 ms.</p> | <p>Pay-per-use</p> | <p>Compute resource consumption = Memory size (GB) × Execution duration (s) The execution duration is measured at a granularity of 1 ms and converted to seconds for resource consumption calculations.</p> <ul style="list-style-type: none"> <li>• The first 400,000 GB-seconds are free of charge.</li> <li>• Billing beyond the free quota = (Total compute resources consumed by all functions – 400,000 GB-seconds) × Unit price per GB-second</li> </ul> <p>For details about the unit price of execution duration, see <a href="#">Pricing Details</a>.</p> |

| Billing Item                                   | Description  | Billing Mode       | Formula  |
|--|--|--------------------|--|
| <p>Execution duration (reserved instances)</p> | <p>The execution duration fee depends on the execution duration and memory allocated to the function. The following describes how computing resources are calculated:</p> <p>FunctionGraph calculates the resource consumption of a function by multiplying the selected memory by the execution duration. The execution duration is calculated from the time when reserved instances are successfully created to the time when you call an API to release these instances. Reserved instances that stay alive for less than 1 minute will be billed for 1 minute. Those that stay alive for a longer time will be rounded up to the nearest 1s. For details, see <a href="#">Reserved Instance Billing</a> and <a href="#">Billing Analysis (Scenario I)</a>.</p> | <p>Pay-per-use</p> | <ul style="list-style-type: none"> <li>● <b>Idle mode disabled</b><br/>The compute resources consumption of a function is calculated as follows: Memory size (GB) × Reserved instances' running duration (s). <ul style="list-style-type: none"> <li>- The first 400,000 GB-seconds are free of charge.</li> <li>- Billing beyond the free quota = (Total compute resources consumed by all functions – 400,000 GB-seconds) × Unit price per GB-second</li> </ul> </li> <li>● <b>Idle mode enabled</b><br/>The compute resources consumption of a function is calculated as follows: Idle resource consumption + Execution resource consumption. <ul style="list-style-type: none"> <li>- The idle resource consumption (not included in the 400,000 GB-second free quota) is calculated as follows: Memory size (GB) × [Running duration of reserved instances – Execution duration of reserved instances (s)] × Unit price per GB-second in idle mode</li> <li>- The execution resource consumption (included in the 400,000 GB-second free quota) is calculated as follows: The first 400,000 GB-seconds are free of charge.<br/>Billing beyond the free quota is as follows: [Memory size of the function (GB) × Execution duration of reserved instances – 400,000 GB-second] × Unit price per GB-second in idle mode.</li> </ul> </li> </ul> <p>For details about the unit price of execution duration, see <a href="#">Pricing Details</a>.</p> |

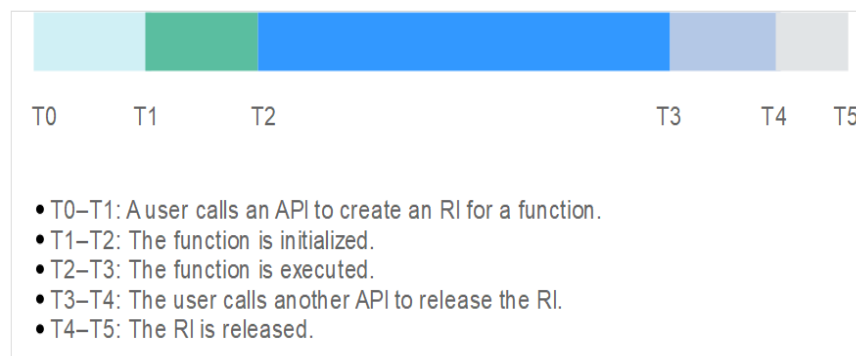
| Billing Item | Description  | Billing Mode                       | Formula   |
|--------------|--|------------------------------------|---|
| Others       | Additional charges will apply if other cloud services, such as OBS and SMN, are used with FunctionGraph. | Billing modes of involved services | The billing modes of other cloud services are different. For details, see <a href="#">Pricing Details</a> . |

### Reserved Instance Billing

You can create and release reserved instances and will be billed based on their execution duration. Reserved instances stay alive in the execution environment, eliminating the influence of cold starts on latency.

- If you call an API to create a reserved instance, billing will begin as soon as the reserved instance creation is complete.
- If you call another API to release a reserved instance, new requests will not be routed to the reserved instance. The reserved instance will be released within a certain period, and the billing will stop.

**Figure 3-1** Lifecycle of a reserved instance



As shown in [Figure 3-1](#), the billing lasts from T1 to T4.

Reserved instances are metered at a granularity of second. If a reserved instance runs for any fraction of a minute, you will be billed for the full minute. Otherwise, you will be billed based on the actual execution duration.

For example, if a reserved instance runs for 51s, you will be billed for 1 minute. If the reserved instance runs for 61s, you will be billed for 61s.

- The unit of execution duration is GB-second, which means that when the memory size is 1 GB, the duration is charged by the second.

# 4 Billing Examples

## Billing Scenario I

A user created functions A, B, and C in April, as shown in [Table 4-1](#). Assume that the total number of executions of these three functions in April was 2 million, 100,000, and 100,000. How much was the user billed for the three functions in April?

**Table 4-1** Function details

| Function   | Description  |
|--|--|
| Function A (not using reserved instances)                    | Created on April 5, 2023. Assume that the memory of function A is 512 MB and the execution duration is 500 ms.   |
| Function B (using reserved instances and idle mode disabled) | Created on April 18, 2023. Assume that the memory of function B is 128 MB and the execution time is 10s. If function B was deleted on April 30, 2023, the running duration of function B is 12 days. |
| Function C (using reserved instances and idle mode enabled)  | Created on April 20, 2023. Assume that the memory of function C is 128 MB and the execution time is 5s. If function C was deleted on April 30, 2023, the running duration of function C is 10 days.  |

## Billing Analysis (Scenario I)

Functions A, B, and C are billed separately since they use different types of instances. For details, see [Table 4-2](#).

**Table 4-2** Billing details

| Billing Item                 | Billing Details   |
|------------------------------|---|
| Price for requests           | (2 million requests + 100,000 requests + 100,000 requests - 1 million requests) × \$0.2 USD/1 million requests = \$0.24 USD   |
| Price for execution duration | <p>Total execution duration of function A: 512 MB/1024 MB × (500 ms/1000 ms) × 2 million requests = 500,000 GB-seconds.</p> <p>Total execution duration of function B: 128 MB/1024 MB × (12 × 24 × 60 × 60) = 129,600 GB-seconds.</p> <p>The execution duration of function C is divided into two parts:</p> <ul style="list-style-type: none"> <li>• Execution duration: 128 MB/1024 MB × 5s × 100,000 requests = 62,500 GB-seconds</li> <li>• Idle duration: 128 MB/1024 MB × (10 × 24 × 60 × 60 - 5s × 100,000 requests) = 45,500 GB-seconds</li> </ul> <p>Price for execution duration of functions A, B, and C: \$0.00001667 USD/GB-second × (500,000 GB-seconds + 129,600 GB-seconds + 62,500 GB-seconds - 400,000 GB-seconds) + 45,500 GB-seconds × \$0.000005556/GB-second = \$5.122105</p> |
| Total                        | Price for requests + Price for execution duration = \$0.24 USD + \$5.122105 = \$5.362105 ≈ \$5.36   |

# 5 Free Tier

FunctionGraph offers a free tier for your account, which you can share with your IAM users.

- **Requests:** 1 million free requests every month.
- **Execution duration:** 400,000 GB-seconds free execution duration every month. For example, if the memory for a function is 1 GB, the free execution duration every month is 400,000s. If the memory is 512 MB, the free execution duration is 800,000s.

#### NOTE

- The free tier is reset at the beginning of every calendar month.
- When a function uses reserved instances and the idle mode is enabled, the execution duration within the idle duration during the reserved instances' lifecycle is not included in the 400,000 GB-second free tier per month.

**Table 5-1** shows the free execution quota for different memory sizes.

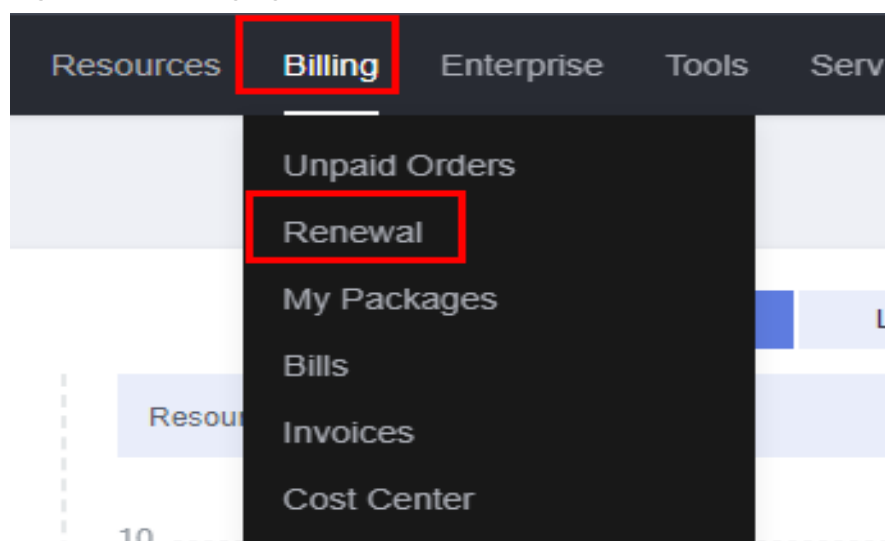
**Table 5-1** Free execution quota

| Memory (MB)         | Free Execution Quota (s)  |
|---------------------|---------------------------|
| 128                 | 3,200,000                 |
| 256                 | 1,600,000                 |
| 512                 | 800,000                   |
| 768                 | 533,333                   |
| 1024                | 400,000                   |
| 1280                | 320,000                   |
| 1536                | 266,667                   |
| Other memory size X | $1024 \times 400,000 / X$ |

# 6 Renewing Subscriptions

To renew your subscription, go to the **Renewals** page on the management console, as shown in [Figure 6-1](#). For details, see [Renewal Management](#).

**Figure 6-1** Managing renewals



# 7 Bills

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You can view the bill of a resource in the **Billing** section of **Billing Center** to learn about the usage and billing information of FunctionGraph in a certain period.

## Bill Generation

FunctionGraph usage is billed by day. For details about the fee deduction rules, see [Bill Run for Pay-per-Use Resources](#).



# 8 Arrears

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Your account goes into arrears if the balance is less than the bill to be settled. To continue using your resources, top up your account in time.

If your account goes into arrears, top up your account within the specified period. For details, see [Repaying Outstanding Amount](#).

## Arrears Reason

Your account balance is insufficient to pay for the used resources on the pay-per-use basis.

## Arrears Impact

If your account is in arrears, you cannot create functions or perform any operations on resources.

## Avoiding and Handling Arrears

Top up your account immediately if your account is in arrears. For details, see [Topping Up an Account](#).

If you no longer use your functions or flows, you can delete them to avoid unnecessary fee deduction.

You can configure the **Balance Alert** on the **Billing Center > Overview** page. You will receive a message and an email if the total amount of your account balance, cash coupons, and flexi-purchase coupons drops below the balance alert.

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

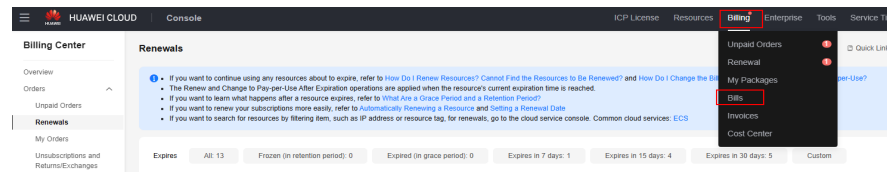
# 9 Billing Termination

If you no longer use the functions or flows, delete them in a timely manner to stop billing.

## Searching for Resources from Bills and Stopping Billing

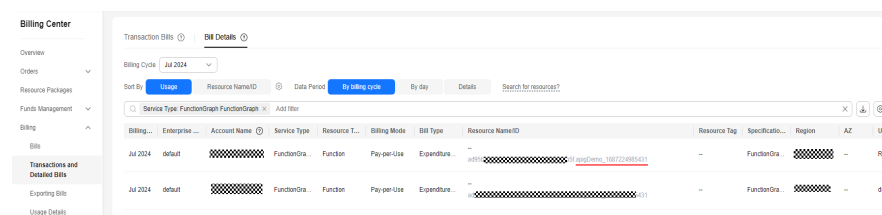
**Step 1** Log in to the management console. On the top menu bar, choose **Billing & Costs > Bills**.

Figure 9-1 Viewing bills



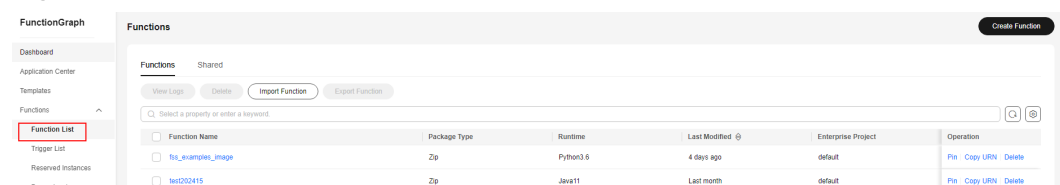
**Step 2** Choose **Transactions and Detailed Bills > Bill Details**. Copy the content following the dot (.) in the **Resource Name/ID** column as shown in Figure 9-2.


Figure 9-2 Copying a resource name



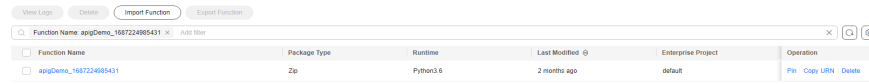
**Step 3** In the left navigation pane of the management console, choose **Compute > FunctionGraph**, select the region where the resource is located, and go to the function list.

Figure 9-3 Function list



**Step 4** In the search box on the right, paste the resource name copied in **Step 2** (By default, resources are queried by function name in the search box) and click the  icon to find the resource.

**Figure 9-4** Searching for the resource



**Step 5** Click **Delete** in the row that contains the function resource to be deleted, enter **DELETE**, and click **OK**.

**Figure 9-5** Deleting a resource



----End

# 10 Cost Optimization

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In the cloud-native era, Huawei Cloud's FunctionGraph offers a serverless platform for on-demand code execution. As services grow more complex, controlling costs while leveraging FunctionGraph's agility and elasticity is crucial.

This section outlines strategies for cost optimization to help you use FunctionGraph efficiently, ensuring stable operations and minimizing expenses.

## Reducing the Execution Memory

FunctionGraph charges you based on the memory size. If you configure too much memory for a function, you will be billed for extra fees. You can adjust the memory based on the monitoring data. For details about the memory usage, see [Viewing FunctionGraph Monitoring Data](#). For details about the memory configuration, see [Configuring General Information About a Function](#).

## Enabling the Dynamic Memory of a Function

FunctionGraph allows you to enable dynamic memory for a function. After dynamic memory is enabled, the resource specifications used by the function instance can be set when the function processes a specified request, minimizing resource usage and reducing costs. For details, see [Configuring the Dynamic Memory of a Function](#).

## Configuring Maximum Instances of a Function

FunctionGraph allows you to configure the maximum number of instances for a function to prevent excessive instance usage. You can configure the maximum number of instances based on the elastic instance metric. For details, see [Viewing FunctionGraph Monitoring Data](#).

## Configuring a Proper Number of Reserved Instances

FunctionGraph reserved instances are billed based on their running duration. Enabling too many reserved instances will incur extra costs. You can reduce the number of reserved instances manually or by the auto-scaling policies. For details, see [Reserved Instance Management](#).

## Enabling Idle Mode for Reserved Instances

You can enable the idle mode for reserved instances to save money. For details, see [Reserved Instance Management](#).

## Optimizing Function Timeout

FunctionGraph billing is based on function execution duration and times. If a function times out, you will be billed for it. To reduce costs, optimize or disable the function promptly. You can determine whether a function times out based on the execution duration. For details about the monitoring metrics, see [Viewing FunctionGraph Monitoring Metrics](#).

## Configuring Heartbeat Detection for a Function

The heartbeat function monitors user functions for issues like deadlocks, memory overflow, or network errors. If it detects an abnormality, FunctionGraph terminates the instance to prevent unnecessary costs from failed retries. For details, see [Configuring Heartbeat Detection for a Function](#).

# 11 Billing FAQ

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## Will the Requests of All My Functions in Different Regions Be Billed?

For details, see [Requests Billing](#).