

**Cost Center**

# **Best Practices**

**Issue**            01  
**Date**             2025-02-25



**Copyright © Huawei Technologies Co., Ltd. 2025. 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 Technologies Co., Ltd.

## **Trademarks and Permissions**



HUAWEI and other Huawei trademarks are trademarks 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 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.

# Security Declaration

## Vulnerability

Huawei's regulations on product vulnerability management are subject to the *Vul. Response Process*. For details about this process, visit the following web page:

<https://www.huawei.com/en/psirt/vul-response-process>

For vulnerability information, enterprise customers can visit the following web page:

<https://securitybulletin.huawei.com/enterprise/en/security-advisory>

---

# Contents

---

<b>1 Budget Management.....</b>	<b>1</b>
1.1 Creating a Daily Budget to Monitor Pay-per-Use Expenditures.....	1
<b>2 Cost Allocation.....</b>	<b>5</b>
2.1 Viewing Costs By Cost Category.....	5
2.2 Mapping Cost Allocation Methods to Cost Category Rules.....	8
2.3 Using Cost Anomaly Detection to Identify Cost Anomalies.....	13

# 1 Budget Management

## 1.1 Creating a Daily Budget to Monitor Pay-per-Use Expenditures

### Background

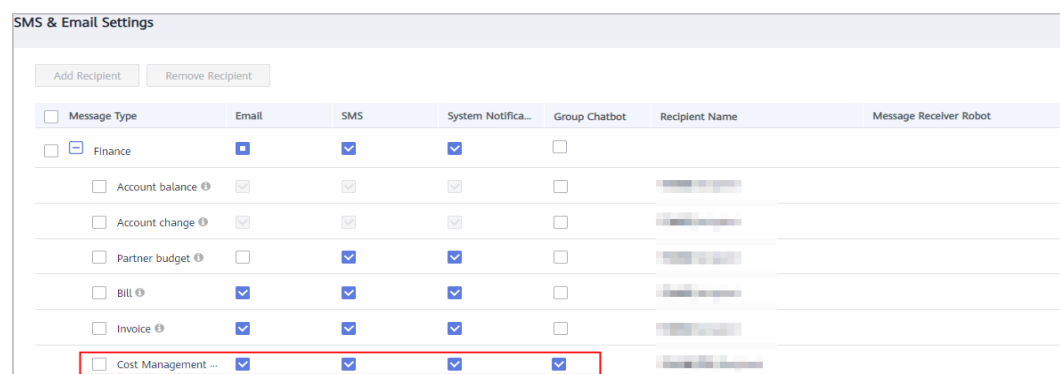
Budget management is crucial to your use of the cloud. Effective budget management helps you control costs. You can configure cost and usage alert thresholds to gain visibility into your actual and predicted expenditures. With alerts configured, you can learn whether there are expenditure surprises in a timely manner.

### Scenarios

It is easy to forget to shut down servers or delete pay-per-use resources that are no longer needed. This will result in unnecessary expenditures. To avoid this problem, you can enable budget management to configure a daily budget. This way, the specified recipients will receive alerts if any pay-per-use expenditures exceed the amount you have configured.

### Prerequisites

Before you enable budget alerts, configure notification methods for **Cost Management** in Message Center.



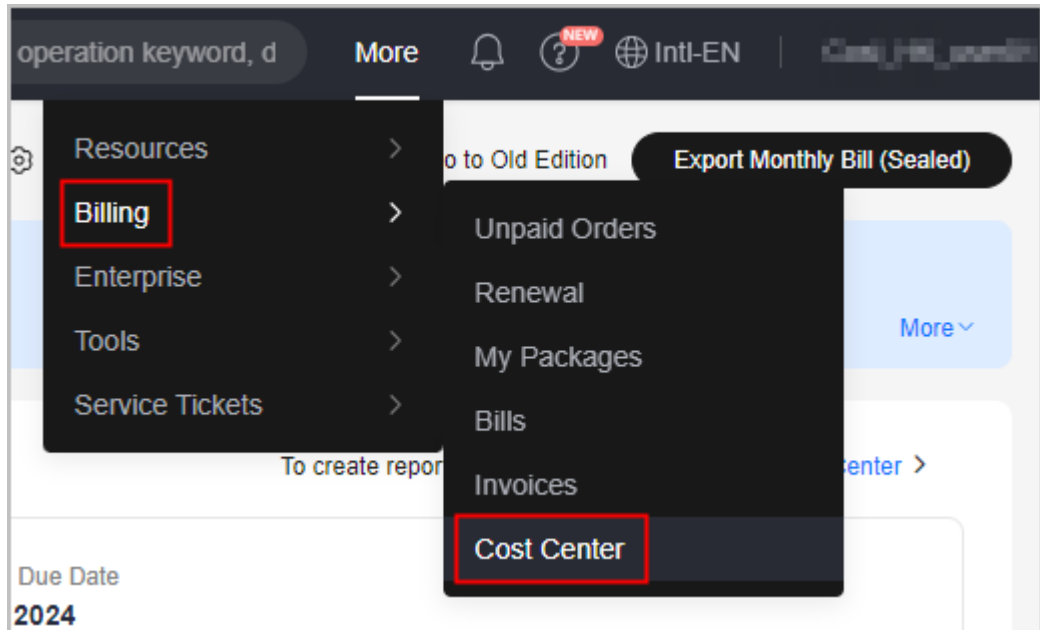
The screenshot shows the 'SMS & Email Settings' interface. It features a table with columns for 'Message Type', 'Email', 'SMS', 'System Notifica...', 'Group Chatbot', 'Recipient Name', and 'Message Receiver Robot'. The 'Cost Management ...' row is highlighted with a red box, indicating that all notification methods (Email, SMS, System Notifica..., and Group Chatbot) are selected for this message type.

Message Type	Email	SMS	System Notifica...	Group Chatbot	Recipient Name	Message Receiver Robot
<input type="checkbox"/> Finance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Account balance ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Account change ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Partner budget ⓘ	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Bill ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Invoice ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/> Cost Management ...	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

## Procedure

**Step 1** Log in to Huawei Cloud management console.

**Step 2** Choose **Billing & Costs > Cost Center**.



**Step 3** Choose **Budget Management > Budgets**.

**Step 4** Click **Create Budget**.

**Step 5** Choose **Custom Budget > Cost budget**, and click **Next**.

**Step 6** Configure budget details and click **Next**.

- Basic budget information

**Configure Budget Details** [Learn more](#)

**\*Reset Period** Cost Center will reset your budgeting based on the reset period you select

Budget evaluation begins at 00:00 GMT+08:00 on the start date and will be reset to zero at 00:00 GMT+08:00 on each day moving forward

The reset period Daily is currently not supported for monthly or quarterly budgeted amount, forecasting-based budget alerts, or budget scope filtering by cost category

**\*Budget Duration** Cost Center will monitor your expenditures during the budget duration you select

**\*Start Time** Cost Center will begin to monitor your budget on the start date you select

**\*Budgeted Amount (USD)**

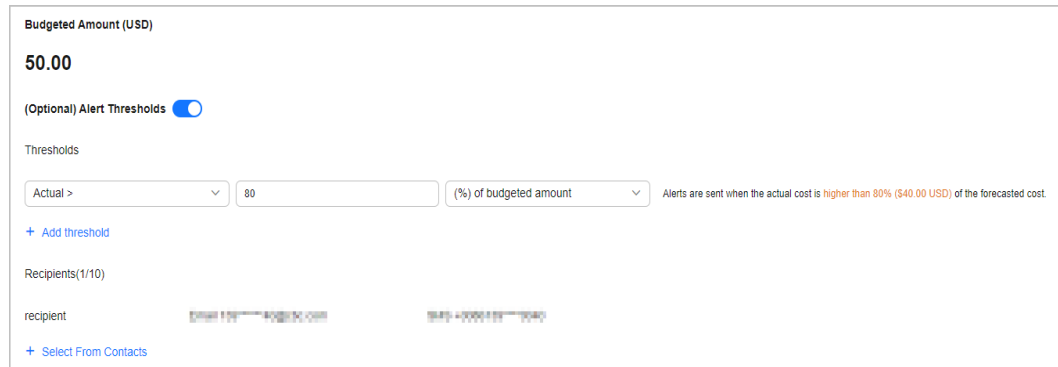
Average daily costs for the last 30 days: \$3.79 USD

- **Budget Name:** Enter a budget name, for example, **pay-per-use**.
- **Reset Period:** Set this parameter to **Daily** to monitor your pay-per-use expenditures on a daily basis.
- **Budget Duration:** Set this parameter to **Recurring** to start monitoring your pay-per-use expenditures on the day specified for **Start Time**.
- **Start Time:** Set this parameter to the current day (recommended).
- **Budgeted Amount:** Set this parameter to the estimated upper limit of daily costs. Suppose the unit price of an ECS with given specifications is \$1.23 USD, and 10 ECSs are required to work for about 8 hours a day. In this case, you can set the budgeted amount to \$100 USD or a bit more and set the alert threshold to a specific percent of this amount.
- **Cost Scope:** Set **Billing Mode** to **Pay-per-use**. Set other parameters as required. If they are left blank, all of your costs will be monitored.

**CAUTION**

Choose the exact budget type you want to monitor. The budget information is updated every hour for original costs and every 24 hours for amortized costs.

**Step 7** Set the alert threshold and specify the recipients, and click **Next**.



The screenshot shows a configuration window for budget management. At the top, it displays 'Budgeted Amount (USD)' as 50.00. Below this, there is a toggle for '(Optional) Alert Thresholds' which is turned on. Under the 'Thresholds' section, a dropdown menu is set to 'Actual >', a text input field contains '80', and another dropdown is set to '(%) of budgeted amount'. A note states: 'Alerts are sent when the actual cost is higher than 80% (\$40.00 USD) of the forecasted cost.' There is a '+ Add threshold' link. The 'Recipients(1/10)' section shows a table with columns for 'recipient', 'EMAIL', and 'PHONE'. One recipient is listed with a masked email and phone number. A '+ Select From Contacts' link is at the bottom.

If you receive alerts while using the resources, you can ignore them. If you are not using the resources but are still billed and receive alerts, that means more resources are being used than were predicted. In this case, some devices may need to be shut down or the resources may have been accidentally not deleted. You are advised to immediately check the resource status or billing information.

**Step 8** Confirm the budget information and click **Save**.

----End

## Follow-up Operations

If the costs for the current day have reached the configured threshold, Cost Center will notify you of the budget overrun.

---

### CAUTION

There is a delay of one to two hours before a notification is sent out. By the time you receive an alert, the actual expenditure has already exceeded the alert threshold. You are advised to view the cost details in Cost Center as soon as possible.

---



# 2 Cost Allocation

## 2.1 Viewing Costs By Cost Category

You can use cost categories to group costs by linked account, service type, bill type, cost tag, or enterprise project, or other custom rules you defined.

### Example Scenarios

You need to allocate costs among departments A, B, and C.

1. You can identify the responsible department for most of the costs by using the tags you attached to the specific resources. Suppose department A additionally deploys the CDN service, whose resources cannot be tagged, and all the departments share the Cloud Phone service.

As mentioned earlier, you can use the tag key **Group** and tag values **Department A**, **Department B**, and **Department C** to group most of your costs, as shown in the following figure.



2. You need to create cost categories for further cost allocation. Four hours after the creation, you can define cost splitting rules to split the shared cost across those departments.
  - Select **Custom** for **Allocation Method** to split the unallocated cost, with 50% allocated to Department A, 30% to Department B, and 20% to Department C.
  - Select **Custom** for **Allocation Method** to split the shared cost, with 30% allocated to Department A, 30% to Department B, and 40% to Department C.

## Step 1: Creating Cost Categories

**Step 1** Log in to Cost Center.

**Step 2** Choose **Cost Organization > Cost Categories**.

**Step 3** Create cost categories and configure their basic rules by referring to [Example Scenarios](#).

**Define Category Rules**  
You can define up to 20 rules for a cost category, and the rules will be applied in the sequence you set.  
If you have used existing cost tags or enterprise projects for cost categorization, these existing rules are still recommended. [Learn more](#)

Rule 1 Inherited Value-Cost Tag ▲ ▼

Inherited Dimension Cost Tag ▼ Tag Key Group ▼

Rule 2 DepartmentA ▲ ▼

Rule Name DepartmentA

Only one logical operator can be used to associate a maximum of 5 conditions. If multiple operators are involved, use condition groups.

And ▼ Condition 1 Service Type ▼ Is ▼ Content Delivery Network (CDN) Selected 1/2▼ ⊖

+ Add Condition

Rule 3 SharedCosts ▲ ▼

Rule Name SharedCosts

Only one logical operator can be used to associate a maximum of 5 conditions. If multiple operators are involved, use condition groups.

And ▼ Condition 1 Service Type ▼ Is ▼ Cloud Phone CPH × Selected 1/2▼ ⊖

+ Add Condition

**Step 4** Define cost splitting rules four hours after the creation, by referring to [Example Scenarios](#).

**(Optional) Define Splitting Rules**  Include flexi-purchase coupons  Include stored value cards Net Amortized Cost Export

Shared costs will be used as a source value you want to split. If you split original net costs (actual payment) and amortized net costs (amortized payment), you can view and export the results in the cost category details.

---

**Rule 1**

Source Value: Uncategorized  
MTD cost: \$111.11 Source or target value not available. [Learn more](#)

Target Value: Department A × Department: Selected 3/3

Allocation Method:  Proportionally  Evenly  Custom

The following table displays how your costs of \$111.11 are split by custom percentage. For details, access the cost category details page.

Target Value	Percentage	Associated Cost (USD)
Department A	<span style="border: 1px solid red; padding: 2px;">50.00</span> %	\$55.56
Department B	<span style="border: 1px solid red; padding: 2px;">30.00</span> %	\$33.33
Department C	<span style="border: 1px solid red; padding: 2px;">20.00</span> %	\$22.22
<b>Total</b>	<b>100.00</b> %	<b>\$111.11</b>

---

**Rule 2**

Source Value: Shared Cost  
MTD cost: \$111.11 Source or target value not available. [Learn more](#)

Target Value: Department A × Department: Selected 3/3

Allocation Method:  Proportionally  Evenly  Custom

The following table displays how your costs of \$111.11 are split by custom percentage. For details, access the cost category details page.

Target Value	Percentage	Associated Cost (USD)
Department A	<span style="border: 1px solid red; padding: 2px;">30.00</span> %	\$33.33
Department B	<span style="border: 1px solid red; padding: 2px;">30.00</span> %	\$33.33
Department C	<span style="border: 1px solid red; padding: 2px;">40.00</span> %	\$44.44
<b>Total</b>	<b>100.00</b> %	<b>\$111.11</b>

----End


## Step 2: Viewing Cost Details

**Step 1** Log in to Cost Center.

**Step 2** Choose **Cost Analysis**.

**Step 3** Click the link to the name of a cost category to view the cost details.

**Splitting Details** You can click any amount link to explore further on the Cost Analysis page.  Include flexi-purchase coupons  Include stored value cards Net Amortized Cost Export



Item	Net Amortized Cost (USD)	Split Amount (USD)	Amount Allocated (USD)	Proportion
<b>Total</b>	2,453,674.20	0.00	2,453,674.20	100%
Department A	5.94	1,226,569.83	1,226,569.77	50%
Department B	0.00	736,100.48	736,100.48	30%
Department C	0.00	490,983.95	490,983.95	20%
Shared Cost <span style="color: green;">Split source</span>	1,251.51	-1,251.51	0.00	0%
Uncategorized <span style="color: green;">Split source</span>	2,452,416.75	-2,452,416.75	0.00	0%

In this figure, the net amortized cost is displayed for each proportion.

- **Net Amortized Cost:** the net amortized cost after costs are split based on defined rules
- **Split Amount:** the amount split from the shared cost. If the amount is negative, the corresponding cost is the split source.
- **Amount Allocated:** the amount actually allocated to each tag value. Amount Allocated = Net Amortized Cost + Split Amount
- **Proportion:** the percentage of costs that are allocated

You can interpret the split amount for each department in the following way:

- Department A  
Net cost amortized by cost tag: \$5.94 USD

Split amount for allocated shared cost and unallocated cost:  $30\% \times 1251.51 + 50\% \times 2452416.75 = \$1,226,583.828$  USD

Total amount allocated:  $5.94 + 1,226,583.828 = \$1,226,589.768$  USD

- Department B

Net cost amortized by cost tag: \$0 USD

Split amount for allocated shared cost and unallocated cost:  $30\% \times 1251.51 + 30\% \times 2452416.75 = \$736,100.478$  USD

Total amount allocated:  $0 + 736,100.478 = \$736,100.478$  USD

- Department C

Net cost amortized by cost tag: \$0 USD

Split amount for allocated shared cost and unallocated cost:  $40\% \times 1251.51 + 20\% \times 2452416.75 = \$490,983.954$  USD

Total amount allocated:  $0 + 490,983.954 = \$490,983.954$  USD

- Shared cost and unallocated cost

If they have all been split to Department A, Department B, and Department C, then the amount allocated is 0.

**Step 4** View cost details by cost category.

Choose **Cost Details Export**. On the **Export to Local Directory** page, export the original or amortized cost details file (for example, *file name: %Account name %\_AmortizedCostDetailByUsage\_YYYY-MM*), and then you can view the cost details by cost category.

AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR
Usage	Usage	Usage	Usage	Package	Usage	List Price	Original	Coupons	EXPORT	EXPORT	Tag:Deg	Tag:Em	Tag:Gr	Cost Unit:CEC
Traffic size	Byte	2.31E+12		0	0	1.98	1.98	0	0	0	mobile	alpha	yellowD	HWCloud
Duration	Duration	SECOND	1814400	0	0	317.52	317.52	0	0	0	mobile	alpha	yellowD	HWCloud
Duration	Duration	SECOND	820800	0	0	287.28	287.28	0	0	0	mobile	alpha	yellowD	HWCloud
Duration	Duration	SECOND	72000	0	0	320	320	0	0	0	mobile	alpha	yellowD	HWCloud
Duration	Duration	SECOND	1900800	0	0	47.52	47.52	0	0	0	mobile	alpha	yellowD	HWCloud

----End

## 2.2 Mapping Cost Allocation Methods to Cost Category Rules

### Example Scenarios

Suppose you assign cloud services to specific enterprise projects and manage costs by enterprise project. In this case, the enterprise projects are business units that you allocate your costs to, and each of them maps to a cost category rule you defined. When you create a cost category, you can use an existing enterprise project as a category rule.

A VPC is generally shared by multiple enterprise projects and its costs are regarded as shared costs. You can allocate the shared costs to enterprise projects based on the rules you defined so each enterprise project is accountable for its own costs.

### Creating a Cost Category

- Step 1** Log in to Cost Center.

**Step 2** Choose **Cost Organization > Cost Categories**.

**Step 3** Click **Create Cost Category**.

1. Configure basic information.

You can enter a cost category name (**shared resources** as an example) and set a look-back period for applying the cost category rules.

Cost Categories / Create Cost Category

1 Configure Category Details — 2 Define Category Rules — 3 (Optional) Split Shared Costs

**Specify Category Name**  
Specify a unique cost category name, such as a department, project, or owner name. Once your cost category is created, its name cannot be changed.

Category Name

**Select Look-back Period**  
By default, cost category rules start being applied during the current month, but you can select any specified month from the previous 12 months.

Look-back Period

2. Define cost category rules.

- a. You can use an existing cost allocation method (**Enterprise Project** as an example) to quickly create cost category rules. In this example, since you have enterprise projects A, B, and C, the following rules will be created:

Rule 1: Enterprise project A

Rule 2: Enterprise project B

Rule 3: Enterprise project C

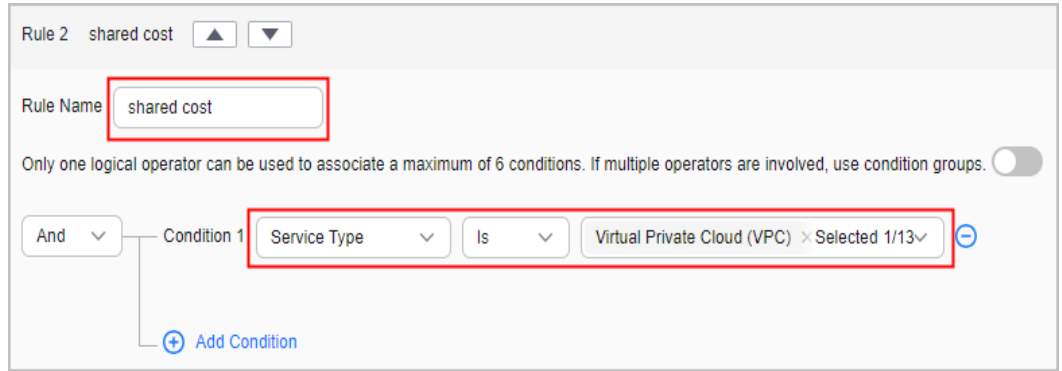
**Define Category Rules**  
You can define up to 20 rules for a cost category, and the rules will be applied in the sequence you set.  
If you have used existing cost tags or enterprise projects for cost categorization, these existing rules are still recommended. [Learn more](#)

Rule 1	Inherited Value-Enterprise Project	▲ ▼
--------	------------------------------------	-----

Inherited Dimension

- b. Define rules for shared costs.

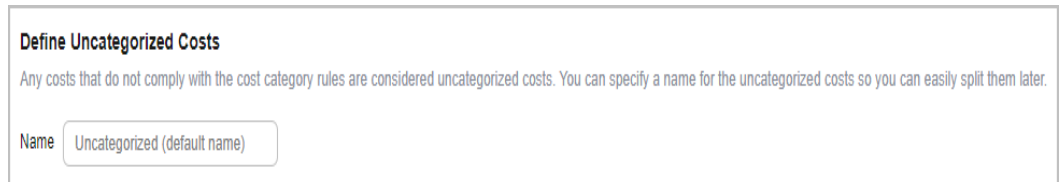
In this example, the rule name is **shared cost** and the condition is that the service type is Virtual Private Cloud (VPC).



c. Define uncategorized costs.

Costs that do not comply with any cost category rules are named **Uncategorized (default name)**.

Generally, if you have finished group costs by using cost category rules, you can treat uncategorized costs as shared costs.



**NOTE**

Your cost management maturity rating is based on how thoroughly your costs are allocated.

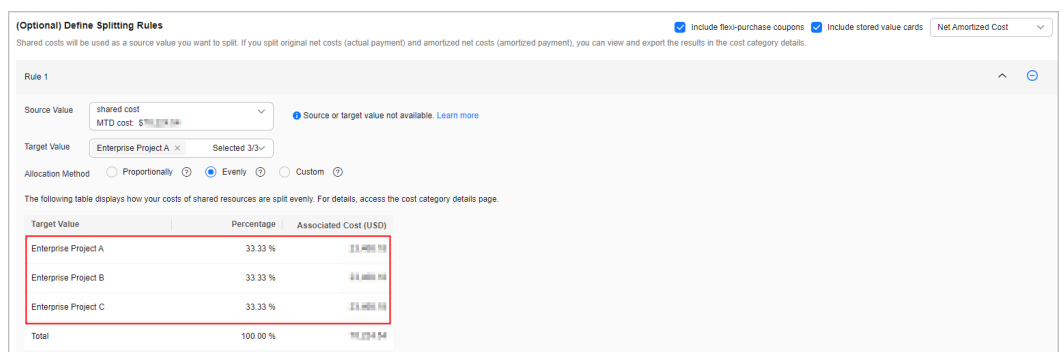
3. Split shared costs.

- a. Select a split source. In this example, **Source Value** is set to **shared cost**, which you specified when creating the cost category.
- b. Select split targets. In this example, **Target Value** is each of the enterprise projects you used when creating the cost category.

**NOTE**

You need to set the splitting rules for shared costs 4 hours after you inherit the existing cost allocation methods.

- c. Select an allocation method. In this example, the method **Evenly** is selected. You can also select **Custom** to allocate your costs based on a custom percentage for each target value. Then you will see how your costs of shared resources are split across your target values.



- d. You can create multiple splitting rules for your use case. In this example, your uncategorized costs can be treated as shared costs and split to each enterprise project. You can follow the preceding steps to define splitting rules for uncategorized costs.

**Step 4** Click **Create Cost Category**.

----End

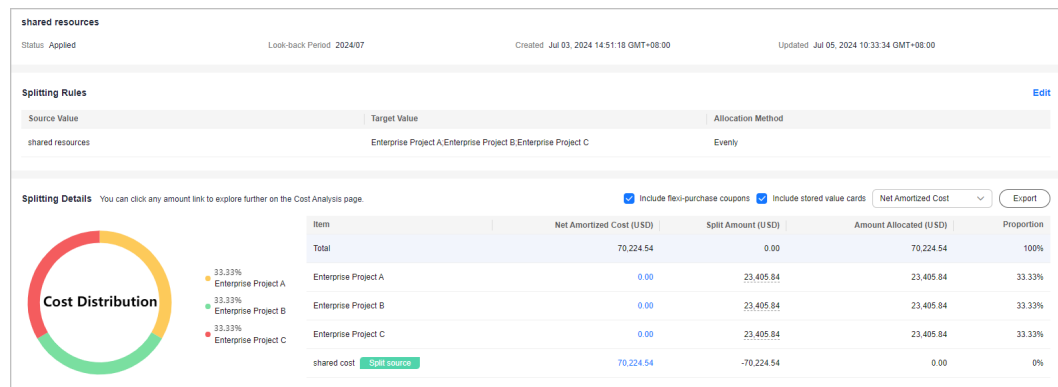
## Viewing Cost Breakdowns by Cost Category

Before you start, you must have created a cost category.

**Step 1** Log in to Cost Center.

**Step 2** Choose **Cost Organization > Cost Categories**.

**Step 3** Click the cost category name to view the cost details.



The cost category details page provides an overview of your costs for each category value.

1. Basic information:

**Table 2-1** Fields for basic information

Field	Description
Status	Status of the cost category rule.
Look-back Period	Period during which a cost category rule is applied.
Created	Time when the cost category rule was created.
Updated	Time when the cost category rule was last updated.

2. Splitting rules for shared costs

**Table 2-2** Fields for splitting rules

Field	Description
Source Value	The shared costs you want to split. There are two types: <ul style="list-style-type: none"> <li>- Costs that have been categorized but have not met the splitting requirements, for example, the costs of the <b>default</b> enterprise project</li> <li>- Costs that are not captured by your cost category rules</li> </ul>
Target Value	The cost category values you want to split your costs across
Allocation Method	How you want your shared costs split among your targets. You can choose from the following methods: <ul style="list-style-type: none"> <li>- <b>Proportionally</b>: Costs are allocated across your targets based on the proportional weighted cost of each target. For example, if the value of target B is \$800 USD and the value of target C is \$200 USD, the ratio of target B to target C is 4:1. In this case, 80% of the source value will be allocated to target B and 20% to target C.</li> <li>- <b>Evenly</b>: Costs are allocated evenly across all targets. For example, if there are two targets (A and B), then 50% of the costs will be allocated to target A and 50% to target B.</li> <li>- <b>Custom</b>: Costs are allocated across your targets based on a custom percentage for each target. The percentages must add up to 100%.</li> </ul>

### 3. Splitting details

**Table 2-3** Fields for splitting details

Field	Description
Item	Rules you defined for the cost category.
Net Amortized Cost	Net amortized cost after the cost splitting rules are applied. You can change the cost type in the upper right corner. In this example, <b>Net Amortized Cost</b> is chosen.
Split Amount	The amount of the split source. If the amount is negative, the costs will be allocated to the split targets. If an item is not a split source or a split target, <b>0</b> will be displayed.
Amount Allocated	The amount actually allocated to each cost category. Amount Allocated = Net Amortized Cost + Split Amount
Proportion	The percentage of costs that are allocated. You can see your cost breakdowns by proportion.



----End

## 2.3 Using Cost Anomaly Detection to Identify Cost Anomalies

Cloud costs are variable and cloud resources are scalable. After enterprises migrate their services to Huawei Cloud, one of the challenges they face is how to monitor unexpected expenditure spikes. Cost Center provides Cost Anomaly Detection to help you identify cost anomalies in a timely manner and analyze and track these anomalies when they occur.

### Introduction to Cost Anomaly Detection

Cost Anomaly Detection uses machine learning to establish a specific expenditure model for you based on your historical pay-per-use and yearly/monthly expenditures. This function helps identify cases and root causes for cost surprises by comparing them to forecasted amounts. For details about cost anomaly detection rules, see [Detection Rules](#).

After you create alert notifications for monitors of a specific type (such as all services, linked accounts, cost tags, cost categories, or enterprise projects), Cost Center will notify the designated recipients of the cost anomalies whose impact has exceeded the specified threshold at a scheduled time.

You can view all cost anomalies associated with a monitor and analyze the potential causes of anomalies. You are advised to provide feedback on cost anomaly detection to help improve your consumption model and identify possible anomalies more accurately.

### Example Scenarios

After receiving an email about cost anomalies, you may want to identify possible causes and do further analysis.

### Step 1: Viewing Anomaly History

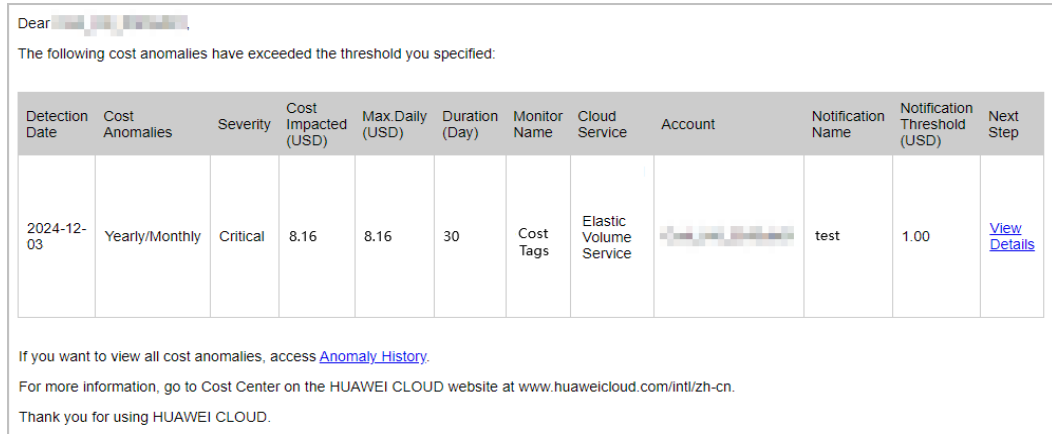
**Suppose you have received a cost anomaly notification and are redirected to the cost anomaly detection page.**

#### NOTE

1. After a global monitor is automatically created, you will receive a notification from Cost Center. This notification is not a cost anomaly alert.
2. Cost Anomaly Detection is free of charge.

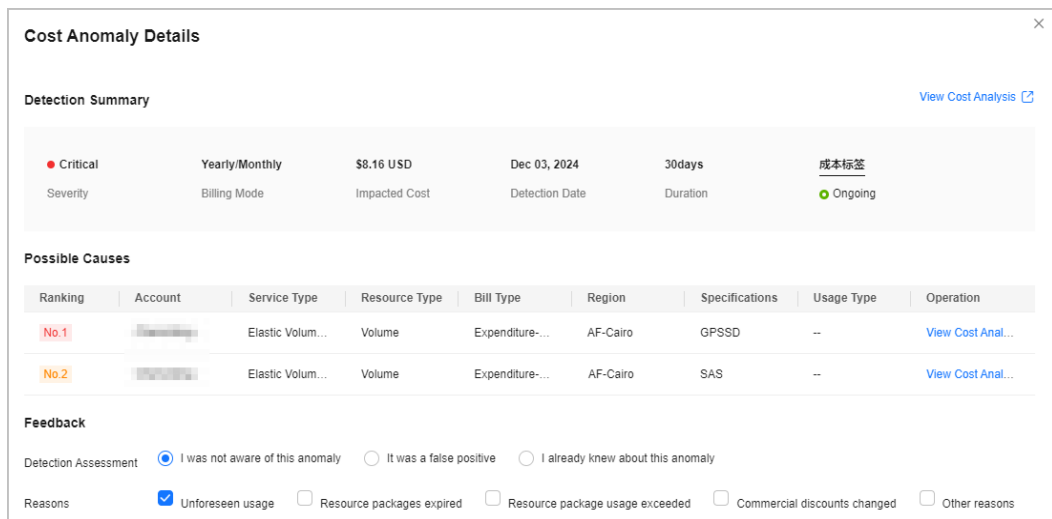
**Step 1** Check your email for cost anomaly notifications.

**Step 2** In the email, click **View Details** in the **Operation** column. You will be redirected to the **Cost Anomaly Details** page in Cost Center.



**Step 3** View cost anomaly details. As shown in the following figure, a cost anomaly in a yearly/monthly subscription was generated on December 03, 2024. The cost impact was \$8.16 USD over 30 days, and the service type involved is EVS.

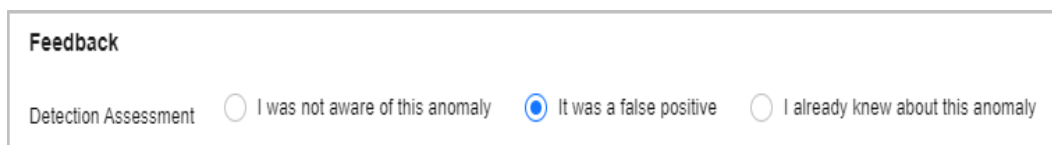
On the **Cost Anomaly Details** page, you can see the basic information and potential causes of the cost anomaly.



----End

## Step 2: Analyzing Causes of Cost Anomalies

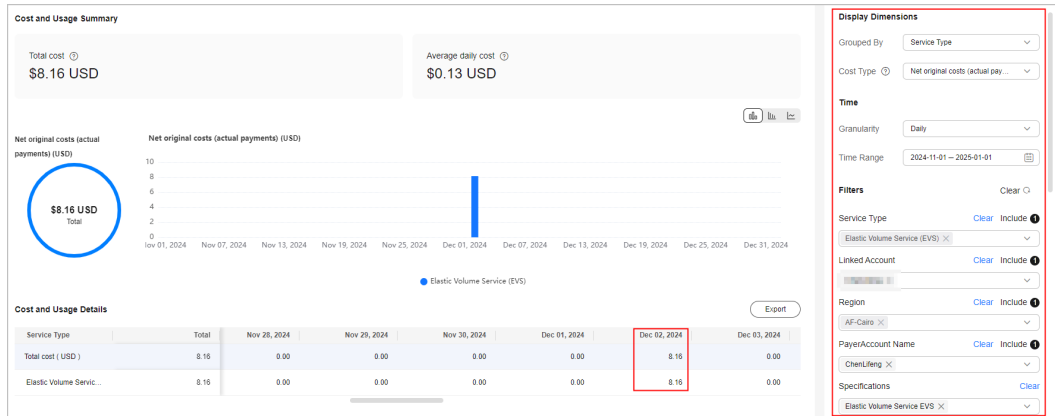
**Step 1** Under **Possible Causes**, do preliminary analysis. For example, if you have renewed the yearly/monthly subscription in question, the cost increase is a foreseen anomaly, and you can confirm that it was a false positive. Your feedback will help improve the anomaly detection model.



**Step 2** Further analyze the anomaly. If you think you are not aware of the increase, you are advised to click **View Cost Analysis** in the **Operation** column for further analysis.

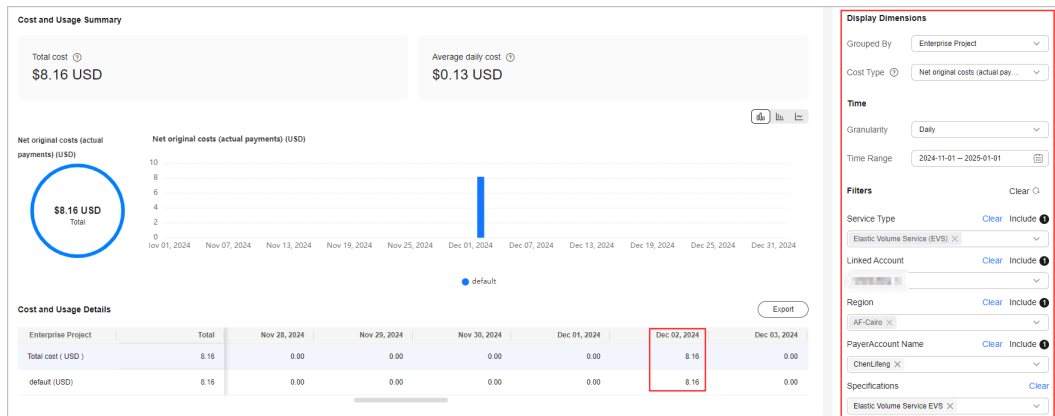
Possible Causes								
Ranking	Account	Service Type	Resource Type	Bill Type	Region	Specifications	Usage Type	Operation
No.1		Elastic Volum...	Volume	Expenditure...	AF-Cairo	GPSSD	--	<a href="#">View Cost Anal...</a>
No.2		Elastic Volum...	Volume	Expenditure...	AF-Cairo	SAS	--	<a href="#">View Cost Anal...</a>

**Step 3** Determine whether the unforeseen anomaly is accurate. In this example, a new purchase order line was generated for EVS on December 2, 2024, costing \$8.16 USD. You need to check whether the new purchase was an anomaly or not.



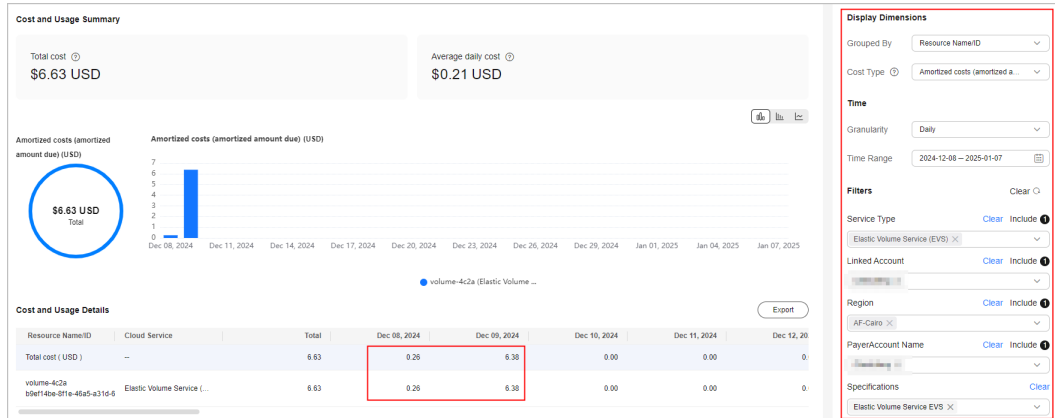
**Step 4** Analyze potential causes of the anomaly from a specific perspective. For example, if you want to analyze the source of the anomaly from the business perspective, you can select **Enterprise Project**, **Cost Tag**, or **Cost Category** to group the costs.

As shown in the following figure, the EVS cost (\$8.16 USD) generated on December 02, 2024 was assigned to the **default** enterprise project.



**Step 5** Set **Grouped By** to **Resource Name/ID** to identify the resources that have generated expenditures.

As shown in the following figure, the costs of EVS **volume-4c2a b9ef14be-8f1e-46a5-a31d-6c5196082937** purchased on December 08, 2024 and December 09, 2024 were \$0.26 USD and \$6.38 USD, respectively.



----End