

**Data Security Center**

# **User Guide**

**Issue**            01  
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# Contents

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<b>1 Service Provisioning.....</b>	<b>1</b>
1.1 Buying DSC.....	1
1.2 Upgrading Edition and Specifications.....	3
<b>2 Allowing or Disallowing Access to Cloud Assets.....</b>	<b>6</b>
<b>3 Asset Map.....</b>	<b>11</b>
<b>4 Asset Management.....</b>	<b>18</b>
4.1 Asset Center.....	18
4.1.1 Overview.....	18
4.1.2 Adding OBS Assets.....	19
4.1.3 Authorizing Access to Database Assets.....	22
4.1.4 Authorizing Access to Big Data Assets.....	28
4.1.5 Adding a Log Stream.....	32
4.2 Managing Asset by Group.....	33
4.3 Metadata Tasks.....	34
4.3.1 Creating a Metadata Collection Task.....	35
4.3.2 Running a Metadata Collection Task.....	36
4.4 Data Exploration.....	38
4.5 Asset Catalog.....	40
<b>5 Sensitive Data Identification.....</b>	<b>44</b>
5.1 Overview of Sensitive Data Identification.....	44
5.2 Sensitive Data Identification Configuration.....	46
5.2.1 Creating an Identification Template.....	46
5.2.2 Managing Identification Templates.....	47
5.2.3 Customizing a Rule.....	49
5.2.4 Editing a Rule.....	51
5.2.5 Adding a Sensitive Level.....	52
5.2.6 Managing Levels.....	53
5.3 Sensitive Data Identification Tasks.....	54
5.3.1 Creating an Identification Task.....	54
5.3.2 Starting a Task.....	61
5.3.3 Identification Tasks.....	62
5.3.4 Identification Results.....	66

<b>6 Data Asset Protection</b>	<b>72</b>
6.1 Data Masking	72
6.1.1 Overview	72
6.1.2 Configuring a Data Masking Rule	77
6.1.3 Static Data Masking	85
6.1.3.1 Creating a Database Data Masking Task	85
6.1.3.2 Creating an Elasticsearch Data Masking Task	89
6.1.3.3 Creating an MRS Data Masking Task	93
6.1.3.4 Creating a Hive Masking Task	96
6.1.3.5 Creating an HBase Masking Task	100
6.1.3.6 Creating a DLI Masking Task	104
6.2 Data Watermarking	108
6.2.1 Overview	108
6.2.2 Injecting Watermarks	110
6.2.2.1 Injecting Watermarks to Databases	110
6.2.2.2 Injecting Watermarks to Documents	119
6.2.2.3 Injecting Watermarks to Images	124
6.2.3 Extracting Watermarks	130
6.2.3.1 Extracting Watermarks from Databases	130
6.2.3.2 Extracting Watermarks from Documents	133
6.2.3.3 Extracting Watermarks from Images	136
6.3 (Optional) Configuring GaussDB(DWS) and MRS Hive	139
<b>7 Data Security Operations</b>	<b>142</b>
7.1 Situational Awareness Dashboard	142
7.2 Event Management	152
7.3 Alarm Management	155
7.4 OBS Usage Audit	158
7.5 Watermarks	160
7.5.1 Extracting Watermarks from Databases	161
7.5.2 Extracting Watermarks from an OBS Bucket File	163
7.5.3 Extracting Watermarks from a Local File	166
<b>8 Alarm Notifications</b>	<b>168</b>
<b>9 Permissions Management</b>	<b>170</b>
9.1 Creating a User and Assigning DSC Permissions	170
9.2 DSC Custom Policies	172
9.3 DSC Permissions and Supported Actions	173
<b>10 Key DSC Operations</b>	<b>175</b>
10.1 Operations Recorded by CTS	175

# 1 Service Provisioning

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## 1.1 Buying DSC

If you use DSC through the console, you will be billed on a yearly/monthly basis, which is prepaid. If you use DSC by APIs, including data masking and watermark APIs, you pay for what you used. DSC provides the standard and professional editions, and the database and OBS expansion packages. Buy a required DSC edition and additional expansion packages based on your site requirements.

### Prerequisites

You have added the obtained account to the user group that has been assigned with the **DSC FullAccess** permission.

### Constraints

- The specifications of DSC cannot be downgraded once you complete the purchase. If you want to downgrade the DSC specifications, unsubscribe from the current edition and purchase DSC of the edition with lower specifications.
- The database and OBS expansion packages included in the purchased DSC of an edition cannot be renewed or unsubscribed separately.


### Specification Limitations

- One expansion package offers one database instance. RDS and DWS databases, self-built databases on ECSs, DLI, Elasticsearch, and big data on ECSs are supported.
- One OBS expansion package offers 1 TB (1024 GB) of OBS storage.

### Procedure

**Step 1** Log in to the management console.

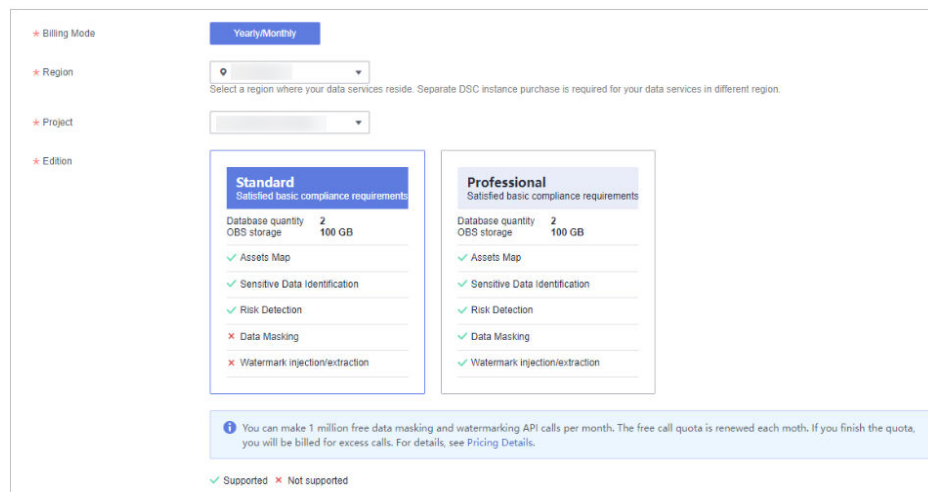
**Step 2** Click  in the upper left corner and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** If you are a first-time user, click **Buy DSC**.

**Step 5** On the **Buy DSC** page, select a **Region**.

**Figure 1-1** Selecting a region and edition

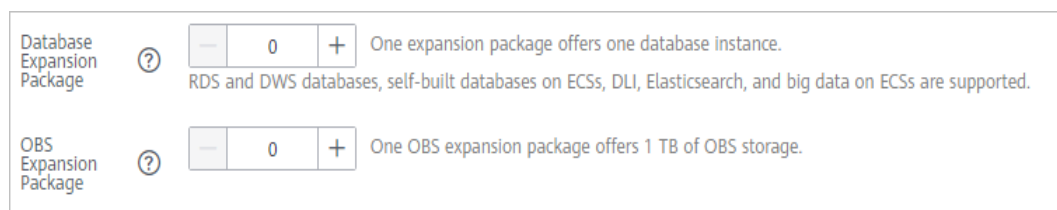


 **NOTE**

To switch a region, select a region from the **Region** drop-down list. Only one DSC edition can be purchased in a region.

**Step 6** Set **Database Expansion Package** and **OBS Expansion Package**.

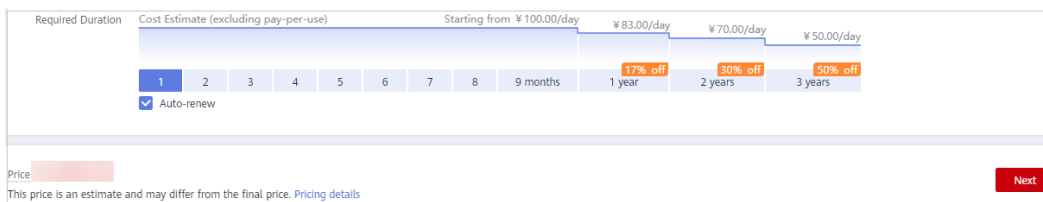
**Figure 1-2** Selecting expansion packages



- One expansion package offers one database instance. RDS and DWS databases, self-built databases on ECSs, DLI, Elasticsearch, and big data on ECSs are supported.
- One OBS expansion package offers 1 TB (1024 GB) of OBS storage.

**Step 7** Set **Required Duration**. Select the required duration from one month to three years.

**Figure 1-3** Setting required duration



**NOTE**

Select **Auto-renew** to enable the system to renew your service by the purchased period when the service is about to expire.

**Step 8** Click **Next**.

If you have any questions about the pricing, click **Pricing details**.

**Step 9** Confirm the order information and agree to the DSC disclaimer by selecting **I have read and agree to the Data Security Center Service Statement** and click **Pay Now**.

**Figure 1-4** Viewing details

Details						
Product Type	Specifications		Billing Mode	Required Duration	Discount	Price
Data Security Center	Standard					
	Database instance quantity	2	Yearly/Monthly	1 month	¥0.00	
	OBS storage	100GB				

I have read and agree to the Data Security Center Service Statement.

**Step 10** Select a payment method to pay for your order on the displayed page.

----End

## 1.2 Upgrading Edition and Specifications

After purchasing DSC, you can upgrade it from the standard edition to the professional edition, and purchase additional database and OBS expansion packages based on your site requirements.

### Prerequisites

- You have added the obtained account to the user group that has been assigned with the **DSC FullAccess** permission.
- You have purchased the standard DSC or professional DSC.

### Constraints

The expired DSC cannot be directly upgraded. Renew DSC before upgrading it.


## Specification Limitations

- One expansion package offers one database instance. RDS and DWS databases, self-built databases on ECSs, DLI, Elasticsearch, and big data on ECSs are supported.
- One OBS expansion package offers 1 TB (1024 GB) of OBS storage.

## Procedure

**Step 1** Log in to the management console.

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

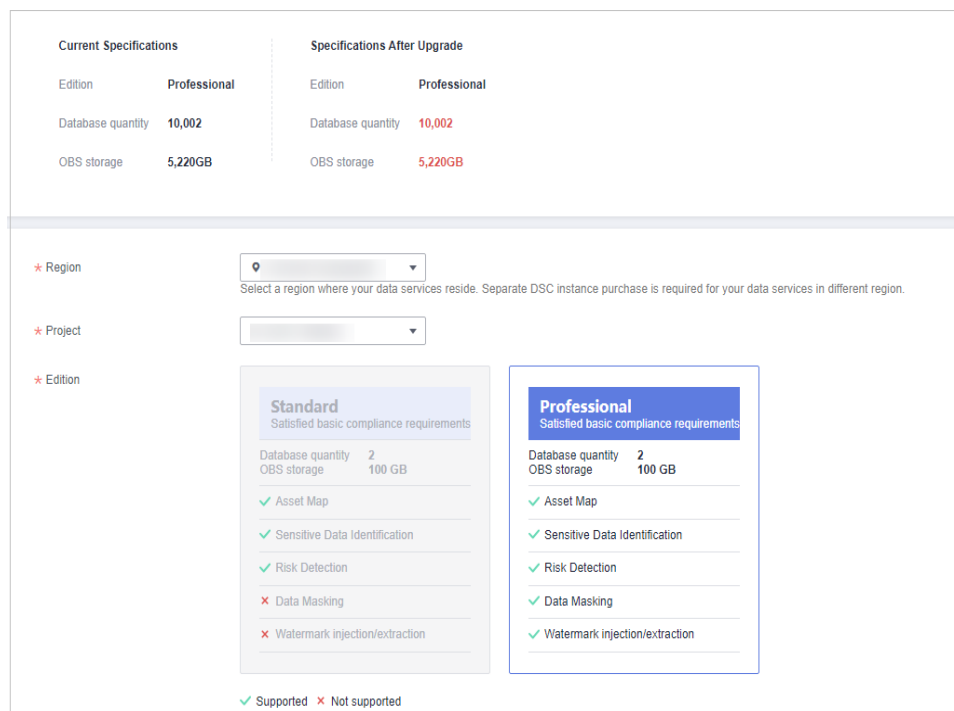
**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the upper right corner of the page, click **Upgrade Specifications**.

**Step 5** The current edition is selected by default for **Edition** on the displayed page, and you can select an edition with higher specifications.

The edition listed on the right side of the current one is a more feature-rich edition.

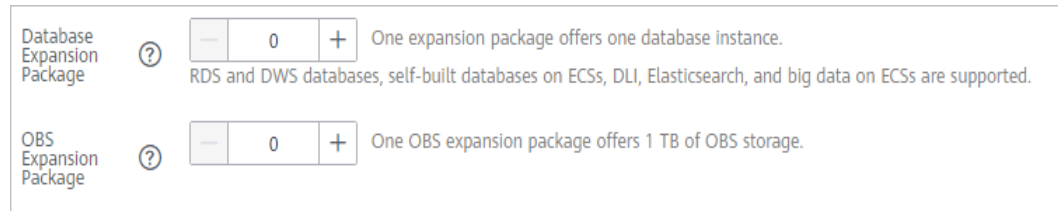
**Figure 1-5** Upgrading edition specifications



**Step 6** Set **Database Expansion Package** and **OBS Expansion Package**.



**Figure 1-6** Selecting expansion packages



- One expansion package offers one database instance. RDS and DWS databases, self-built databases on ECSs, DLI, Elasticsearch, and big data on ECSs are supported.
- One OBS expansion package offers 1 TB (1024 GB) of OBS storage.

**Step 7** Click **Next**.

If you have any questions about the pricing, click **Pricing details**.

**Step 8** Confirm the order information and agree to the DSC disclaimer by selecting **I have read and agree to the Data Security Center Service Statement** and click **Pay Now**.

**Figure 1-7** Viewing details

Details					
Product Type	Specifications		Billing Mode	Required Duration	Discount Price
Data Security Center	Standard				
	Database instance quantity	2	Yearly/Monthly	1 month	¥0.00
	OBS storage	100GB			

I have read and agree to the Data Security Center Service Statement.

**Step 9** Select a payment method to pay for your order on the displayed page.

----End

# 2 Allowing or Disallowing Access to Cloud Assets

This section describes how to grant or revoke permissions for accessing OBS buckets, databases, big data, LTS, and MRS, as well as the asset map feature. The system will create an agency for you to use DSC.

## Prerequisites

You have added the obtained account to the user group that has been assigned with the **DSC FullAccess** permission. For details, see [Creating a User and Assigning DSC Permissions](#).

## Constraints

- After permissions are granted, DSC will be able to access your OBS buckets, databases, big data instances, and other cloud assets as needed.

### NOTE

- After DSC is granted permissions for accessing the OBS bucket to obtain the logs, fees are incurred. For details, see [Requests](#).
- After the permissions are revoked, ensure that your assets have no ongoing tasks. DSC will delete your agencies and assets and all related data. Exercise caution when performing this operation.

## Agency Policies Obtained After Access to Assets Is Allowed

Table 2-1 Agency policies

Asset	Policy	Scope	Remarks
OBS	OBS Administrator	Global	Used to configure OBS logs, obtain the OBS object list, download OBS objects, and obtain OBS delivery logs.

Asset	Policy	Scope	Remarks
	EVS ReadOnlyAccess	Regional	Used to obtain the EVS disk list.
Database	ECS ReadOnlyAccess	Regional	Used to obtain the list of ECSs where databases are built.
	RDS ReadOnlyAccess	Regional	Used to obtain the RDS database list and related information.
	DWS ReadOnlyAccess	Regional	Used to obtain the DWS instance list.
	VPC FullAccess	Regional	Used to establish network connection and create VPC ports and security group rules
	KMS CMKFullAccess	Regional	Used to perform encryption using KMS in data masking.
	GaussDB ReadOnlyAccess	Regional	Used to obtain the GaussDB list.
Big Data	ECS ReadOnlyAccess	Regional	Used to obtain the list of ECSs where big data sources reside.
	CSS ReadOnlyAccess	Regional	Used to obtain the CSS data cluster list and data indexes.
	DLI Service User	Regional	Used to obtain the DLI queue and database.
	VPC FullAccess	Regional	Used to establish network connection and create VPC ports and security group rules
	KMS CMKFullAccess	Regional	Used to perform encryption using KMS in data masking.
MRS	MRS CommonOperations	Regional	Used for cluster query and task creation.
Asset Map	Tenant Guest	Regional	Used to obtain the list of cloud services used for data storage and processing.

Asset	Policy	Scope	Remarks
	OBS Administrator	Global	Used to configure OBS logs, obtain the OBS bucket list, and download items from OBS.
	EVS ReadOnlyAccess	Regional	Used to obtain the EVS disk list.
	OBS Administrator	Global	Used for OBS to deliver logs.
LTS	LTS ReadOnlyAccess	Regional	Used to read LTS log groups or log streams.

## Procedure



- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation pane on the left, click  and choose **Security & Compliance > Data Security Center**, then go to the **Asset Map** page.
- Step 4** In the upper left corner of the **Asset Map** page, click **Modify**. The **Allow Access to Cloud Assets** page is displayed.
- Step 5** On the displayed page, allow or disallow DSC to access your cloud assets. For details, see [Table 2-2](#).

Figure 2-1 Allowing access to cloud assets

### Allow Access to Cloud Assets

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**!** After you allow access to assets, DSC will be able to access your OBS buckets, databases, big data sources, and other assets as needed. When you need to revoke asset access permissions, stop ongoing scans. After the permissions are revoked, your asset information and related data will be deleted. Exercise caution when performing this operation.

**!** If you authorize Data Security Overview to access your resources, DSC automatically enables logging for all your OBS buckets. The bucket access logs are stored in the buckets. You may be billed for log storage. If you authorize DSC to access OBS, logging for OBS buckets that you add to your assets will be enabled based on your usage. You will be billed based on data requests to scan the sensitive data in the buckets. The billing formulas are as follows:



OBS log storage fee = Storage usage x Unit price ?

OBS data request fee = Number of scans x 2 x Number of files x Unit price ?

For details, see [OBS Price Calculator](#) -> [Product Pricing Details](#)

Asset	Authorization Status	Operation
OBS	● Authorized	<input checked="" type="checkbox"/>
Database	● Authorized	<input checked="" type="checkbox"/>
Big Data	● Authorized	<input checked="" type="checkbox"/>
MRS	● Authorized	<input checked="" type="checkbox"/>
Asset Map	● Authorized	<input checked="" type="checkbox"/>
LTS	● Authorized	<input checked="" type="checkbox"/>

**Table 2-2** Parameter description

Parameter	Description
Assets	<ul style="list-style-type: none"> <li>• OBS</li> <li>• Database: For details about the database types and versions supported by DSC, see <a href="#">Constraints</a>.</li> <li>• Big Data: assets in Cloud Search Service (CSS), Data Lake Insight (DLI), Hive, and HBase</li> <li>• MRS: assets in MapReduce Service (MRS).</li> <li>• Asset Map: assets on the cloud.</li> <li>• LTS: assets in Log Tank Service (LTS).</li> </ul> <p><b>Agency Policies Obtained After Access to Assets Is Allowed</b> describes the agency policies obtained after the access to assets is allowed.</p>
Authorization Status	<p>Authorization Status</p> <ul style="list-style-type: none"> <li>• Authorized</li> <li>• Unauthorized</li> </ul>
Operation	<p>Click the following toggle buttons to allow or disallow access to your assets:</p> <ul style="list-style-type: none"> <li>•  : Unauthorized</li> <li>•  : Authorized</li> </ul>

----End

# 3 Asset Map

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The data asset map allows you to view the security status of your assets from multiple dimensions, such as asset overview, categories and risk levels, permissions, storage, sensitivity, and data egress analysis. This helps you quickly detect risky assets and handle them.


## Constraints

A maximum of 1000 assets can be displayed.

## Prerequisites

Cloud asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).

## Asset Map Functions

- **Sorts out data assets on the cloud and displays them by region:** DSC automatically scans and sorts out data assets on the cloud and displays asset distribution on a map. The asset map displays regions of assets based on VPCs and associates asset regions with service regions.
- **Sensitive data display:** DSC displays sensitive data by categories. It identifies and classifies sensitive data using a three-layer identification engine, including default compliance rules, natural language semantic identification, and advanced file similarity detection.
- **Data egress analysis:** DSC provides a unified data egress view based on the asset map to help you identify all data egresses of on the cloud and potential security risks of these egresses, so you can take corresponding data security protection measures.
- **Risk monitoring and alarming:** DSC monitors data asset risks using the risk identification engine, displays the risk distribution for each asset type, and reports alarms for you to take quick response.
  - **Security Score:** The asset map displays the overall **security score** of all your assets. You can click  next to **Scoring Rules** to view the asset security score calculation rule.

- **Security Level:** Assets are classified into different security levels to facilitate viewing and management. You can click an asset with risks to view the risk details.

## Procedure



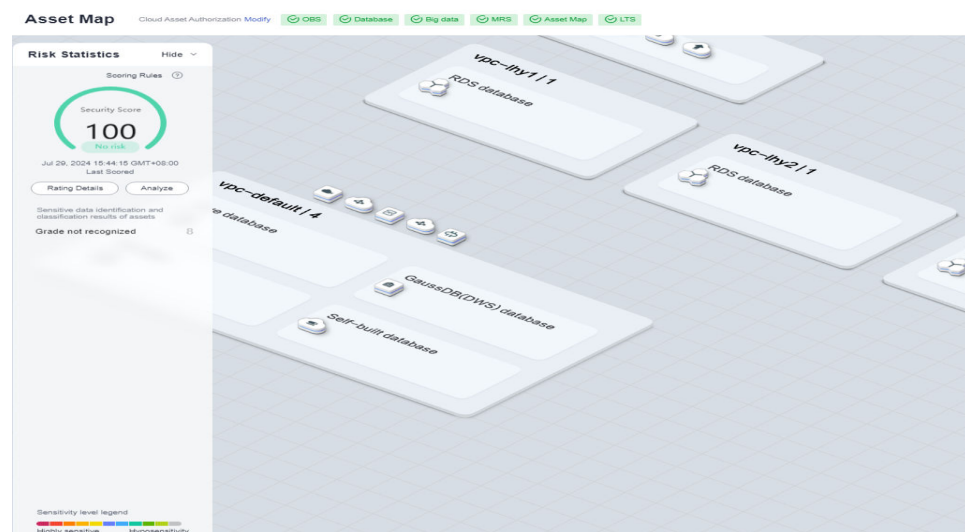
- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Asset Map**.
- Step 5** Click **Add Asset**. On the **Asset Center** page that is displayed, add and authorize access to assets.
- Step 6** After assets are added or authorized, refresh the **Asset Map** page. The following describes the functions and usage of each module on the page.

Figure 3-1 Asset map



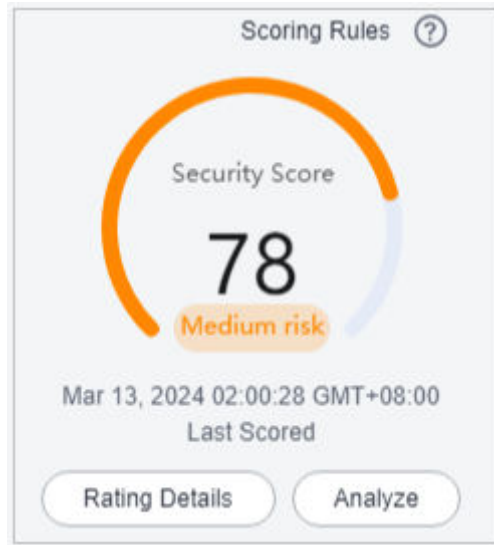
----End


## Risk Statistics

- The **security score**, **last scored time**, and **rating details** of the asset are displayed, as shown in [Figure 3-2](#). You can manually re-analyze the score. The details are as follows:



**Figure 3-2** Security score



- The security score of the asset is displayed. Click  next to the scoring rule to view the asset security score calculation rule.
- Click **Analyze** to perform security analysis and scanning on cloud assets again.
- Click **Rating Details** to view the **Protection Policy Analysis**. Click **Modify** in the **Operation** column to configure policies based on the **Configuration Policy Recommendation**.

The **Protection Policy Analysis** page displays only medium- and high-risk assets, as shown in [Figure 3-3](#). The **Risk Level** is calculated based on the configured risk level and classification and grading.

**Figure 3-3** Security policy analysis

Protection Policy Analysis						
OBS    Big data    Database						
OBS Databases						
Asset	Asset Ty...	Categori...	Risky Configuration Item	Risk Level	Configuration Policy R...	Operation
a-real-bu... (-1.26 minut	OBS	L4	Bucket policy : Public read	<ul style="list-style-type: none"> <li>● Medium risk It is suspected that the ...</li> </ul>	The asset is bound to an...	Modify
			Bucket encryption : To b...	<ul style="list-style-type: none"> <li>● Medium risk Default server-side enc...</li> </ul>	Mandatory Encrypt OBS...	Modify
dsc-test-... (-0.42 minut	OBS	Grade n...	Bucket policy : Read by ...	<ul style="list-style-type: none"> <li>● High Risk It is suspected that the ...</li> </ul>	The asset is bound to an...	Modify

**Table 3-1** Protection policy analysis parameters

Config uration Risk Level	Categoriza tion and Leveling Result	Risk Level	Display
Low	L0-L3 (low-risk)	Low	No
	L4-L7 (medium risk)	Low	No
	L8-L10 (high-risk)	Medium	Yes
Medium	L0-L3 (low-risk)	Low	No
	L4-L7 (medium risk)	Medium	Yes
	L8-L10 (high-risk)	High	Yes
High	L0-L3 (low-risk)	Medium	Yes
	L4-L7 (medium risk)	High	Yes
	L8-L10 (high-risk)	High	Yes

- The sensitive data identification and leveling results of assets are displayed. Assets are displayed by category based on the grading results, as shown in [Figure 3-4](#). The details are as follows:

**Figure 3-4** Sensitive data identification and leveling result

Sensitive data identification and classification results of assets	
	1
L4	2
L3	3
L2	1
L1	2
Grade not recogni...	128

- You can hover the cursor over a sensitivity level to show information about all assets at the sensitivity level.
- You can hover the cursor over an asset category to display the names and scan times of all its scanned assets in the adjacent dialog box.
- You can select an asset to view its details in the right-hand dialog box, which includes basic asset information, sensitive data detection, protection policy analysis, and data egress analysis. For details, see [Viewing Database Instance Details](#).

## Viewing Database Instance Details

- **Basic Info:** displays the type, port number, version, private IP address, and engine type of the instance.
- **Sensitive data identification:** displays authorized and unauthorized databases in the instance.
  - For an **authorized database** that has **not been scanned**. Click **Create identification task** to go to the sensitive data identification page and create an identification task to identify sensitive information in the database. For details, see [Creating an Identification Task](#).
  - For an **authorized database** that **has been scanned**. Click **Expand** to view database scan details.
  - For an unauthorized database, click **Go to Authorize** to obtain the access permission to the database. For details, see [Asset Center](#).

Figure 3-5 Sensitive data identification

tdsql-ecs-dsc-0003 Scanned Protected L3

Instance ID: 1886be90-b617-4cf2-9c1c-0e192098736e  
Created: Sep 02, 2023 03:43:36 GMT+08:00

### Basic Info

Type	Private IP Address
ECS	
Port	Engine Type
4001	TDSQL
Version	
10.3.X	

[Sensitive data identification](#) Database instance security policy ⌵

#### Authorized Database(1)

	decrypt <span>Scanned</span>	<span>Expand</span> <span>⌵</span>
The current database scan task is complete.		

#### Unauthorized database(1)

	tdsql1010	<span>Go to Authorize</span>
The current database is not authorized.		

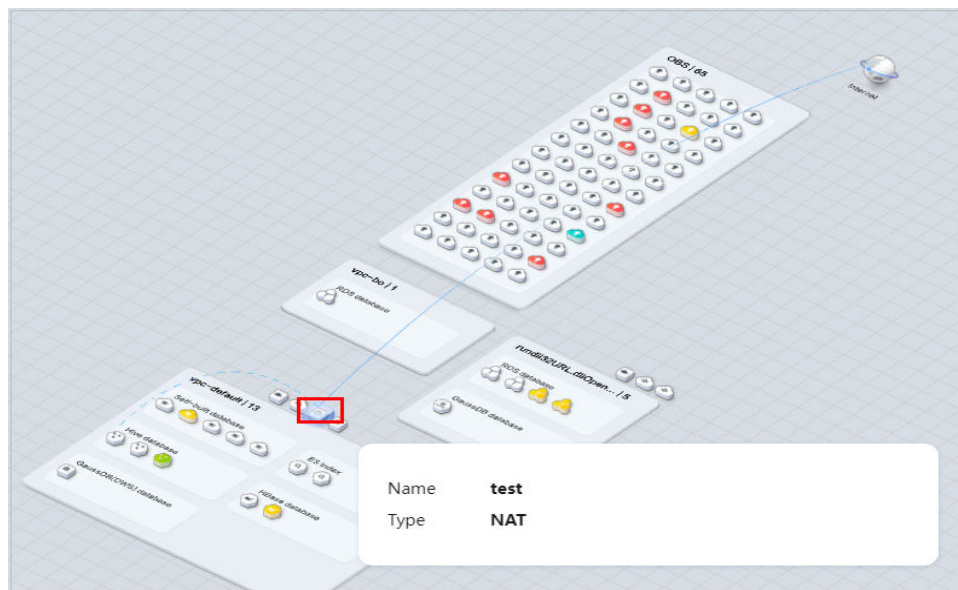
**NOTE**

For OBS data, click **View Details** to view the **Result Details** of the sensitive data identification task. If there is no identification result, create an identification task by referring to section [Creating an Identification Task](#) and view the identification result again.





- **Security policy analysis:**
  - Checks whether high-risk permissions, such as server-side encryption, database encryption, transmission encryption, security group, and public network access, are enabled and displays handling notifications. You can click **View** or **Modify** to handle the permissions.

- Allows you to view the current status of security configurations, including encryption, backup, and audit, for all assets, along with the specific requirements of the policy baseline. Additionally, you can switch to the policy/task configuration page to configure policies and tasks.
- **Data Egress Analysis:** identifies all data egresses on the cloud, including EIP, NAT, API Gateway, and ROMA. You can also move the cursor to the data type icon or VPC icon on the asset map to view the data egress gateway lines.

**Figure 3-6** Data exit analysis



## Related Operations

- If you want to change authorization status of your assets, click **Modify** in the upper right corner. If you want to stop authorization of your assets, ensure that the assets have no ongoing tasks. DSC will delete your agencies and assets and all related data. Exercise caution when performing this operation. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Asset security level legend: Each color represents an asset security level from L0 to L10.
- You can drag the slider on the progress bar to adjust the scale of the asset map.
- Click  in the lower right corner.
- Click  in the lower right corner to display the asset map operation guide.
- Click  in the lower right corner to display the data exception events, so that you can handle the exceptions in time.
- Click  in the lower right corner to display the asset legend.

# 4 Asset Management

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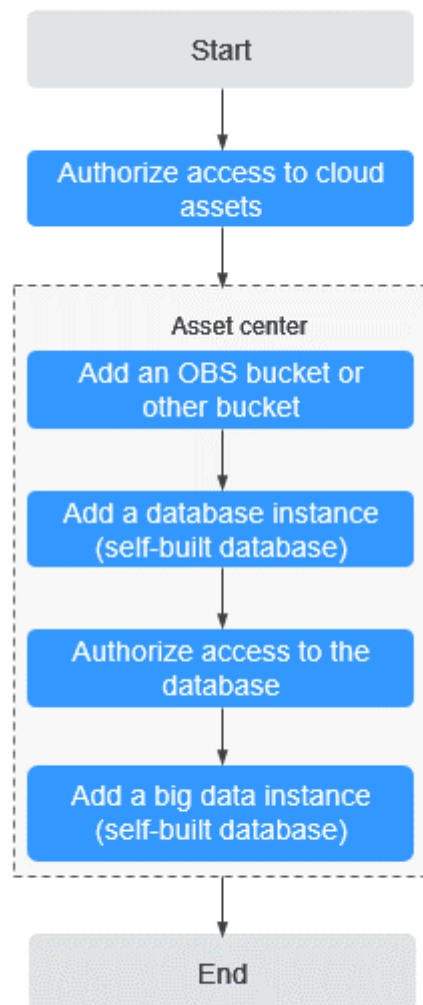
## 4.1 Asset Center

### 4.1.1 Overview

DSC can automatically discover cloud assets and add self-built data assets.

Sensitive data identification, data masking, and database watermarking can be performed only after databases and big data assets are authorized.

Figure 4-1 Introduction to the asset center



## 4.1.2 Adding OBS Assets

After DSC is authorized to access your OBS assets, you can add your OBS assets to DSC protection.

### Prerequisites

- OBS asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- OBS has been enabled and used.
- If you want to add a bucket of other types, set the bucket permission to **public** or set the bucket to a private bucket on which the current account has permissions.

## Constraints


DSC does not support the parallel file system of OBS.

## Adding Self-built OBS Buckets

Self-built buckets are created by the current user, including public buckets and private buckets.

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.

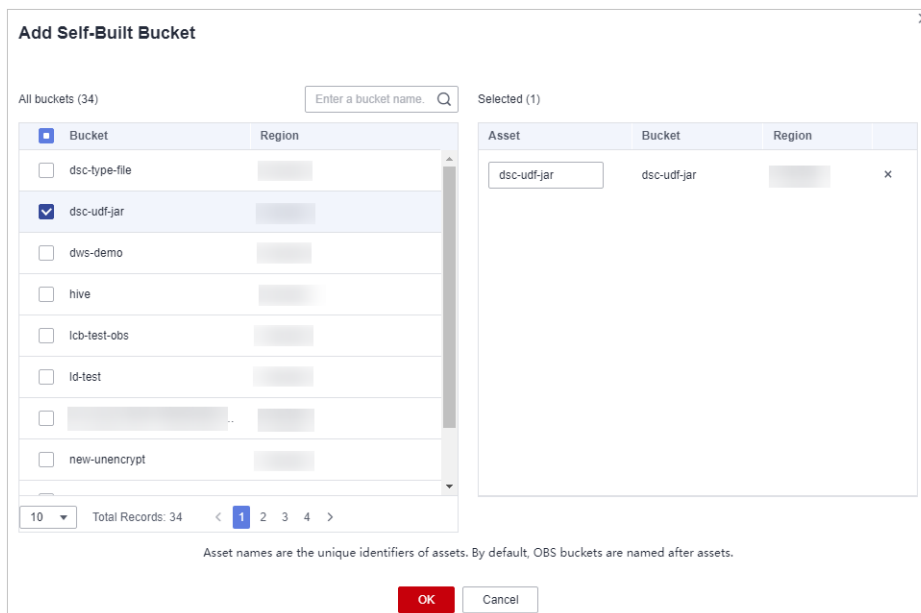
**Step 5** Click **OBS**. The OBS asset list page is displayed.

**Step 6** In the upper left corner of the **OBS** tab page, click **Add Self-Built Bucket**. In the displayed dialog box, select the OBS buckets to be added.

### NOTE

The asset name is used as the unique identifier of the asset. By default, the bucket name is set to the asset name.

**Figure 4-2** Adding self-built OBS buckets



**Step 7** Click **OK**.

----End




## Adding Other Buckets

Other buckets refer to the buckets created by other users with the **public** permission or the private buckets on which the current account has permissions.

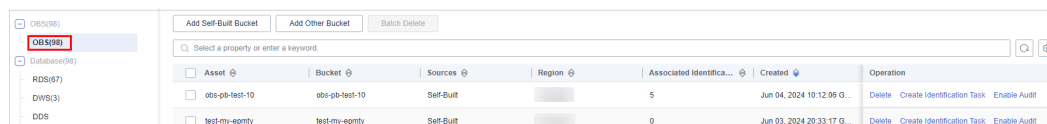
**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.

Figure 4-3 Asset center

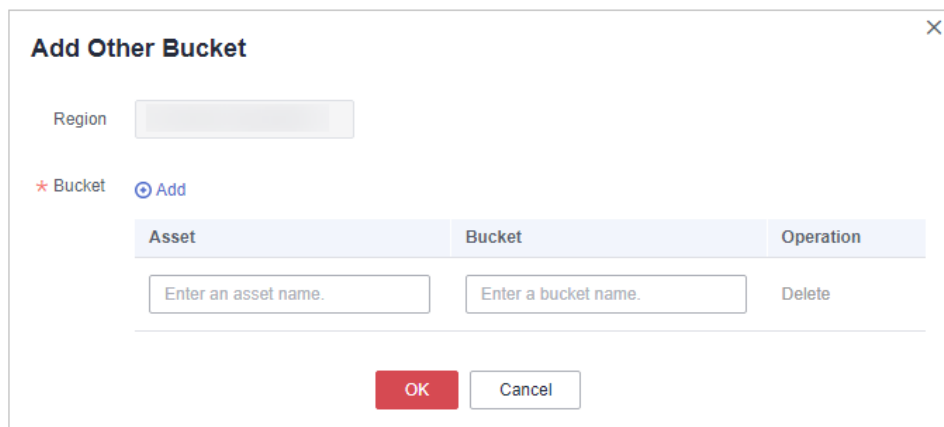


**Step 5** Click **OBS**. The OBS asset list page is displayed.

**Step 6** In the upper left corner of the **OBS** tab page, click **Add Other Bucket**. In the displayed dialog box, enter the name of a bucket to be added.

To add more buckets, click  **Add**.

Figure 4-4 Adding other OBS buckets



**Step 7** Click **OK**.

----End

## Related Operations

- Deleting OBS assets

Select multiple OBS assets and click **Batch Delete** in the upper left corner of the asset list to delete the assets. You can also click **Delete** in the **Operation** column of the asset list to delete a single asset.

- Creating an identification task  
Click **Create Identification Task** in the **Operation** column of the asset list to create a sensitive data identification task. For details, see [Creating an Identification Task](#).
- Enabling database audit  
Click **Enable Audit** in the **Operation** column of the asset list to enable the audit function for OBS assets. After this function is enabled, you can view audit records in [OBS Usage Audit](#).

### 4.1.3 Authorizing Access to Database Assets

If your asset is a self-built database, [add a self-built database instance](#) or perform [Adding a Self-Built External Database Instance](#) and then [authorize the database instance](#).

If your asset is a cloud database, authorize DSC to access the database by following the instructions provided in [Authorizing Access to a Database Assets](#).

#### Prerequisites

- DSC has been allowed to access the database assets. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- You have applied for an ECS instance and installed a database on it.
- RDS, GaussDB(DWS), DDS, or GaussDB service has been enabled, you have assets on them, and there are available IP addresses in the corresponding subnets.
- The **Status** of the database instance is **Normal**, and the number of security groups is 1.

#### Constraints

Only data sources and versions supported by DSC can be added. For details, see [Table 4-1](#).

**Table 4-1** Data sources and versions supported by DSC

Data Source	Version
MySQL	5.6, 5.7, 5.8, and 8.0
SQL Server	<ul style="list-style-type: none"><li>• 2017_SE, 2017_EE, and 2017_WEB</li><li>• 2016_SE, 2016_EE, and 2016_WEB</li><li>• 2014_SE and 2014_EE</li><li>• 2012_SE, 2012_EE, and 2012_WEB</li><li>• 2008_R2_EE and 2008_R2_WEB</li></ul>
KingBase	V8
DMDBMS	7 and 8
PostgreSQL	11, 10, 9.6, 9.5, 9.4, and 9.1


Data Source	Version
TDSQL	10.3.X
Oracle	11, 12

## Authorizing Access to a Database Assets

This section uses the RDS database as an example to describe how to authorize access to database assets. To authorize access to other types of database assets, click the corresponding database type.

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.

**Step 5** Click **RDS** to go to the RDS **database instance** list page. If you need to authorize other types of databases, click the corresponding database type. The RDS database type is just used as an example.

**Figure 4-5** RDS DB instances

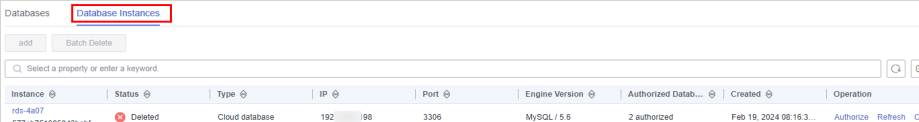


**Step 6** Click the **Database Instances** tab. The **Database Instance** tab page is displayed. Authorization can be performed in either of the following ways:

- Method 1: Click **Authorize** in the **Operation** column of the **database instance** list, and enter the database information for authorization.
  - Grant the **read-only permission**: Only the sensitive data identification function can be used.
  - Grant the **read and write permission**: The sensitive data identification and data anonymization functions can be used.

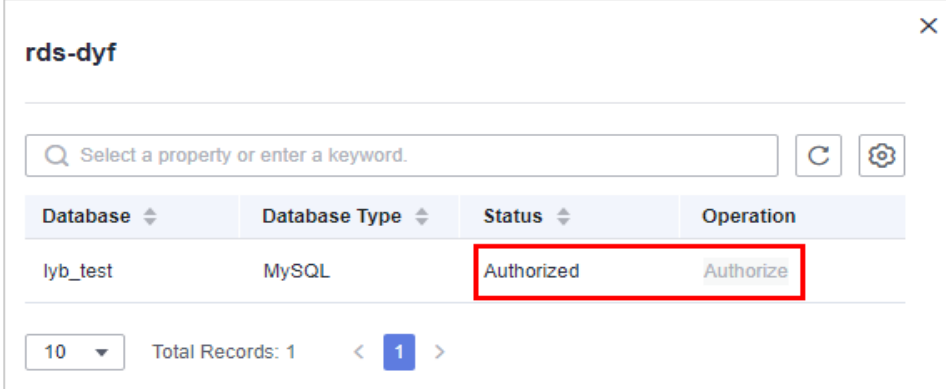
**CAUTION**

- After the RDS read-only permission is authorized, DSC creates an account **dsc\_readonly** in RDS.
  - After the password of the **dsc\_readonly** account is reset in RDS, it will not be automatically synchronized to DSC. As a result, the sensitive data identification task fails. Therefore, do not reset the password of this account.
  - If you have reset the password of **dsc\_readonly** in RDS, delete the authorized RDS DB instance in DSC and re-authorize the instance.
- DSC cannot scan and mask sensitive data in MySQL databases which SSL has been enabled for on the RDS DB instance.

**Figure 4-6** Authorizing access to databases

Instance	Status	Type	IP	Port	Engine Version	Authorized Datab...	Created	Operation
rds-4407 577ab751995842baaf	Deleted	Cloud database	192.198	3306	MySQL / 5.6	2 authorized	Feb 19, 2024 08:16:3...	Authorize Refresh CI

- Method 2: Click an instance name to go to the instance details page. In the **Operation** column, click **Authorize** to authorize access to the database.

**Figure 4-7** Instance details

Database	Database Type	Status	Operation
lyb_test	MySQL	Authorized	Authorize

- Step 7** After the authorization is complete, click the **Databases** tab to view the connection status of the authorized database.



After the asset authorization is complete, the **Connection Status** of the asset is **Checking**, which means DSC is checking the database connectivity.

- DSC can access the added database normally if the **Connection Status** of the database is **Succeeded**.
- DSC cannot access the added database normally if the **Connection Status** of the database is **Failed**. Move the cursor to **Failed** to view the failure cause or rectify the fault by referring to section [How Do I Troubleshoot the Failure in Connecting to the Added Database?](#)

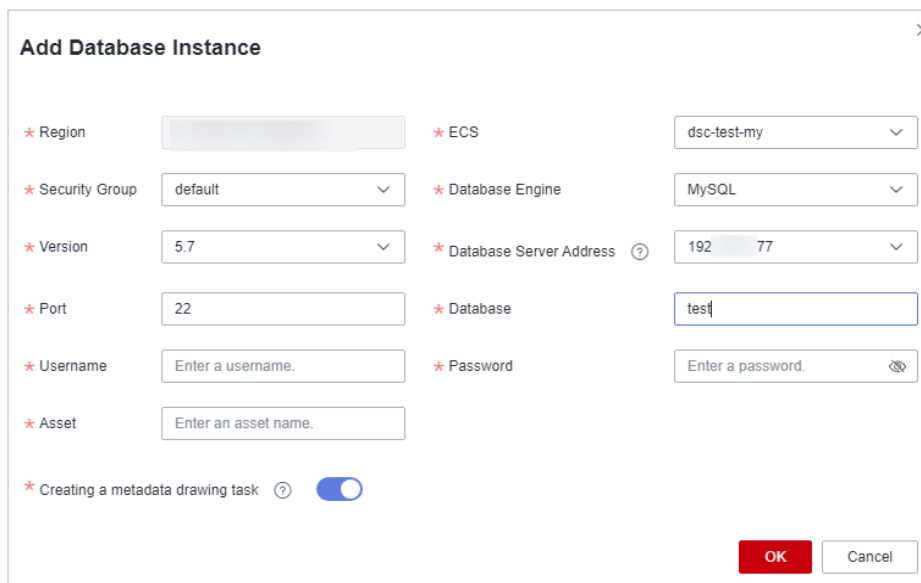
----End

## Adding a Self-Built Database Instance

You can add and delete self-built database instances. For details about the database types and versions supported by DSC, see [Table 4-1](#). This section describes how to add a self-built database. For details about how to delete a database, see [Related Operations](#).

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance** > **Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Asset Management** > **Asset Center**. The **Asset Center** page is displayed.
- Step 5** Choose **Databases** > **Self-built Databases**. The **Database Instances** tab page is displayed.
- Step 6** Click the **Database Instances** tab. The **Database Instance** tab page is displayed.
- Step 7** Click **Add Instance** in the upper left corner of the database instance list. The **Add Database Instance** dialog box is displayed.

**Figure 4-8** Adding a database instance



**Add Database Instance**

\* Region  \* ECS

\* Security Group  \* Database Engine

\* Version  \* Database Server Address

\* Port  \* Database

\* Username  \* Password

\* Asset

\* Creating a metadata drawing task

**OK** **Cancel**

- Step 8** Set related parameters based on [Table 4-2](#) and click **OK** to add the self-built database instance.

**Table 4-2** Configuring database instance information

Parameter	Description
ECS	Select the ECS of the self-built database instance from the drop-down list.
Security group	Select a security group from the drop-down list.
Database Engine	Select a DB engine from the drop-down list. Currently, the following DB engines are supported: <ul style="list-style-type: none"><li>• MySQL</li><li>• TDSQL</li><li>• KingBase</li><li>• DMDBMS</li><li>• PostgreSQL</li><li>• SQLServer</li><li>• Oracle</li></ul>
Version	Select a DB engine version from the drop-down list box.
Database Server Address	Select a server address from the drop-down list box. If the database is deployed in the cluster mode and data masking is required, set this parameter to the IP address of the primary node.
Database Port	Enter an integer ranging from 0 to 65535.
Database Name	Enter a database name.
Username/ Password	Enter the username and password of the database.
Asset	Enter 4 to 255 characters. Only letters, digits, hyphens (-), and "_" are allowed. The value must start with a letter.
Creating a metadata drawing task	After this function is enabled, metadata tasks are automatically delivered based on the default database of the instance to obtain the database, table, and column information of the instance.



**Step 9** After the database instance is added, you can authorize access to the database instance. For details, see [Authorizing Access to a Database Assets](#).

----End

## Adding a Self-Built External Database Instance

You can use to connect your on-premises assets to the proxy VPCs in the cloud, and subsequently add your on-premises databases to DSC.

**Step 1** Log in to the management console.

- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.
- Step 5** Choose **Databases > Self-built Databases**. The **Databases** tab page is displayed.
- Step 6** Click the **Database Instances** tab. The **Database Instance** tab page is displayed.
- Step 7** Click **Add External Database** in the upper left corner. The **Add Database Instance** dialog box is displayed.
- Step 8** Set parameters based on [Table 4-3](#) and click **OK**.

**Table 4-3** Configuring database instance information

Parameter	Description
Region	Region where the instance is deployed.
Proxy VPC	Select a proxy VPC from the drop-down list..
Subnet	Select a subnet from the drop-down list.
Security group	Select a security group from the drop-down list.
Database Engine	Select a DB engine from the drop-down list. Currently, the following DB engines are supported: <ul style="list-style-type: none"><li>• MySQL</li><li>• TDSQL</li><li>• KingBase</li><li>• DMDBMS</li><li>• PostgreSQL</li><li>• SQLServer</li><li>• Oracle</li></ul>
Version	Select a DB engine version from the drop-down list box.
Database Server Address	Enter the IP address of the host where the asset is located.
Database Port	Enter an integer ranging from 0 to 65535.
Database Name	Enter a database name.
User Name	Enter the database username.
Password	Enter the database password.
Asset	Enter 4 to 255 characters. Only letters, digits, hyphens (-), and "_" are allowed. The value must start with a letter.

**Step 9** After this function is enabled, metadata tasks are automatically delivered based on the default database of the instance to obtain the database, table, and column information of the instance.

**Step 10** After the database instance is added, you can authorize access to the database instance. For details, see [Authorizing Access to a Database Assets](#).

----End

## Drawing Metadata of an Instance

- If the number of authorized databases of a cloud database instance is greater than 0, click **Refresh** in the **Operation** column of the instance list to obtain the database, table, and column information of the instance.

Cloud databases that do not support metadata collection, such as DDS, are excluded. For details, see section [Creating a Metadata Collection Task](#).

- If you enable the function of **automatically creating a metadata task** when adding a self-built database instance, the system automatically creates a metadata task to obtain all metadata of the instance after the instance is created.

Self-built databases that do not support metadata collection, such as SQL Server, are excluded. For details, see section [Creating a Metadata Collection Task](#).

- Manually create a metadata task by referring to section [Creating a Metadata Collection Task](#).

## Related Operations

- Deleting a DB instance

A database instance can be deleted only when it is self-built and the number of authorized databases in the instance is 0.

Select multiple self-built database instances and click **Batch Delete** in the upper left corner of the instance list to delete the instances. You can also click **Delete** in the **Operation** column of the instance list to delete a single DB instance.

- Creating an identification task

On the **Databases** tab page, click **Create Identification Task** in the **Operation** column of the asset list to create an identification task for an asset. For details, see section [Creating an Identification Task](#).

## 4.1.4 Authorizing Access to Big Data Assets

- If your asset is a self-built big data type, perform [Adding a Big Data Instance](#) and then [authorize access to big data](#).
- If your assets are cloud big data, perform authorization by referring to [Authorizing Access to Big Data Assets](#).
- If you need to authorize access to DLI databases, perform [Adding a DLI Database](#) first.



## Prerequisites


- DSC has been allowed to access the database assets. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- You have subscribed to DLI and CSS, and have assets in them. There are available IP addresses in the corresponding subnets.
- You have obtained the version, server, and index information of the self-built ES, HBase, and Hive data sources, and there are available IP addresses in the subnets of these data sources.

## Authorizing Access to Big Data Assets

The Elasticsearch big data type is used as an example to describe how to authorize access to big data assets. To authorize access to other types of big data assets, click the corresponding big data type.

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.

**Step 5** Click **Elasticsearch** and choose the **ElasticSearch Instance** tab.

**Step 6** Click **Elasticsearch instance**. The **Elasticsearch instance** tab page is displayed.

**Step 7** Click **Authorize** in the **Operation** column of the ElasticSearch instance list, and enter the Elasticsearch index information to perform authorization.

**Step 8** You can also click an instance name to go to the instance details page and view the status of all indexes of the instance.

Click **Authorize** in the **Operation** column to authorize unauthorized indexes.

### NOTE

Click **Set as Default Database**. The metadata task creates a connection with the default database and draws the metadata of the instance.

**Step 9** Click the **Index** tab to view the connection status of authorized assets.



After the asset authorization is complete, the **Connectivity** of the asset is **Checking**, which means DSC is checking the database connectivity.

- If DSC can access the added asset, the **Connectivity** is **Succeeded**.
- If the DSC cannot access the added asset, the **Connectivity** is **Failed**. Move the cursor to **Failed** to view the failure cause or rectify the fault by referring to section [How Do I Troubleshoot the Failure in Connecting to the Added Database?](#)

----End

## Adding a Big Data Instance

Instances of self-built big data types need to be manually added. This section uses Elasticsearch as an example to describe how to add instances of self-built big data types.

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.
- Step 5** Click **Elasticsearch** and choose the **ElasticSearch Instance** tab.
- Step 6** Click **Elasticsearch instance**. The **Elasticsearch instance** tab page is displayed.
- Step 7** Click **Add** in the upper left corner of the instance list. The **Add Instance** dialog box is displayed.
- Step 8** Set the related parameters according to the [Table 4-4](#), and then click **OK**.



**Table 4-4** Parameters for adding an ES instance

Parameter	Description
ECS	Select an ECS from the drop-down list box.
Big Data Type	Big data instance type to be added. In this case, select <b>Elasticsearch</b> .
Security Group	Select a security group from the drop-down list.
Version	Select a version from the drop-down list box.
Database Server Address	Select a server address from the drop-down list box.
Database Port	Enter an integer from 0 to 65535.
Index	Enter an index name, which can contain only letters, digits, underscores (_), and hyphens (-).
Username/Password	Enter the username and password of the index.
Asset	Enter a user-defined asset name containing 4 to 255 characters.

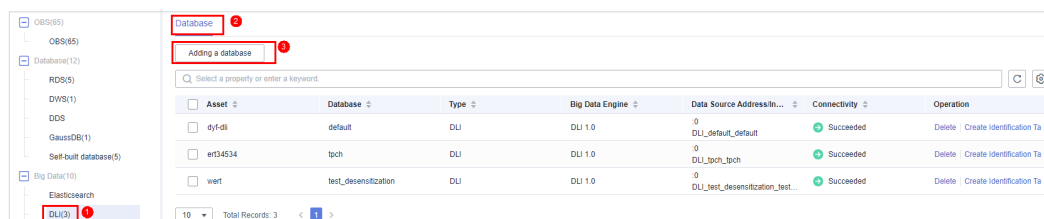
----End

## Adding a DLI Database

- Step 1** Log in to the management console.

- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.
- Step 5** Click **DLI**. The **Database** tab page is displayed.

**Figure 4-9** DLI database list



- Step 6** Click **Adding a database** in the upper left corner of the database list. The **Add Database** dialog box is displayed.
- Step 7** Set parameters according to [Table 4-5](#) and click **OK**.

**Table 4-5** Parameters for adding a database

Parameter	Description
Asset	Enter a user-defined asset name containing 4 to 255 characters.
Big Data Type	Select <b>DLI</b> from the drop-down list box.
Queue	Select a queue from the drop-down list box.
DLI Database	Select the DLI database to be added from the drop-down list box.

After the asset authorization is complete, the **Connectivity** of the asset is **Checking**, which means DSC is checking the asset connectivity.

- If DSC can access the added asset, the **Connectivity** is **Succeeded**.
- If the DSC cannot access the added asset, the **Connectivity** is **Failed**. Move the cursor to **Failed** to view the failure cause or rectify the fault by referring to section [How Do I Troubleshoot the Failure in Connecting to the Added Database?](#)

----End

## Drawing Metadata of an Instance

- If the number of authorized databases in the MRS\_Hive instance is greater than 0, click **More > Refresh** in the **Operation** column of the Hive instance

list to automatically create a metadata task to obtain the database, table, and column information of the instance.

- If you enable the function of automatically creating a metadata task when adding a Hive instance, the system automatically creates a metadata task to obtain all metadata of the instance after the instance is created.
- For details about the big data types that support metadata collection, see section [Creating a Metadata Collection Task](#).
- You can refer to section [Creating a Metadata Collection Task](#) to manually create a metadata collection task.

## Related Operations

- **Deleting an instance**  
A big data instance can be deleted only when the big data instance is a self-built instance and the number of authorized databases in it is 0.  
Select multiple self-built instances and click **Batch Delete** in the upper left corner of the instance list to delete the instances. You can also click **Delete** in the **Operation** column of the instance list to delete a single instance.
- **Creating an identification task**  
On the **Databases** tab page, click **Create Identification Task** in the **Operation** column of the asset list to create an identification task for an asset. For details, see section [Creating an Identification Task](#).

## 4.1.5 Adding a Log Stream

For details about how to add LTS assets, see section [Adding a Log Stream](#).

### Prerequisites

- DSC has been allowed to access the LTS assets. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- LTS has been enabled and assets exist in LTS.

### Adding a Log Stream



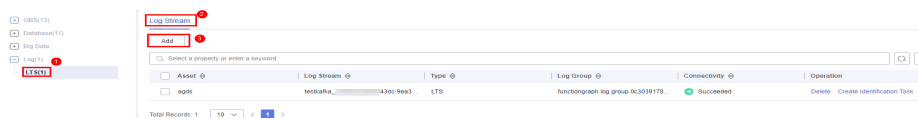
- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Asset Management > Asset Center**. The **Asset Center** page is displayed.
- Step 5** Choose **Log < LTS**. The **Log Stream** tab page is displayed.

Figure 4-10 LTS database list



- Step 6** Click **Add** in the upper left corner of the database list. The **Add Log Stream** dialog box is displayed.
- Step 7** Set parameters according to [Table 4-6](#) and click **OK**.

**Table 4-6** Parameters for adding a database

Parameter	Description
Asset	Enter a user-defined asset name containing 4 to 255 characters.
Big Data Type	Select <b>LTS</b> from the drop-down list box.
Log Group	Select a log group from the drop-down list box.
Log Stream	Select the log stream to be added from the drop-down list box.

After the asset authorization is complete, the **Connectivity** of the asset is **Checking**, which means DSC is checking the asset connectivity.

- If DSC can access the added asset, the **Connectivity** is **Succeeded**.
- If the DSC cannot access the added asset, the **Connectivity** is **Failed**. Move the cursor to **Failed** to view the failure cause or rectify the fault by referring to section [How Do I Troubleshoot the Failure in Connecting to the Added Database?](#)

----End

## 4.2 Managing Asset by Group



Assets in the asset center can be easily maintained and managed by group. This topic describes how to manage assets by group.

### Prerequisites


- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Access to the target assets has been authorized. For details, see asset authorization in section [Asset Center](#).

### Creating a Database Group

You can create labels to categorize your assets, making them easier to manage and view.

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane on the left, choose **Asset Management > Asset Group Management**.

**Step 5** Move the cursor to **all** or the newly created label and click . The **Add Label** dialog box is displayed.

**Step 6** Set the label name (group name) and click **OK**. A label is created.


----End

## Managing Database Groups


You can regroup databases by moving them to another group.

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane on the left, choose **Asset Management > Asset Group Management**.

**Step 5** In the **All Data** tree, select the group to be managed. On the right page, click  on the left of a database instance to expand the database instance details.


**Step 6** Select the database to be moved and click **Move** in the **Operation** column. In the **Move** dialog box, select the target label.


**Step 7** Click **OK**.

----End


## Deleting a Database Group

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane on the left, choose **Asset Management > Asset Group Management**.

**Step 5** Move the cursor to a label name in the **All Data** tree and click  to delete the label.

**Step 6** Click **OK**.

----End

## 4.3 Metadata Tasks

## 4.3.1 Creating a Metadata Collection Task

After a metadata task is created, the task creates a connection with the default database to obtain the metadata of the instance. This topic describes how to create a metadata collection task.

### Prerequisites

Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).

### Procedure
















- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane on the left, choose **Asset Management > Metadata Task**.
- Step 5** On the **Metadata Collection Task** page, click **Create**. [Parameter description](#) describes the parameters required for data source configuration.

Table 4-7 Parameter description



Parameter	Description
Data Source	Select a data source. Available options are <b>MySQL, TDSQL, PostgreSQL, DMDBMS, Kingbase, OpenGuass, DWS, Hive, and MRS_HIVE</b> .
Database Instance	Select a database instance from the drop-down list box.
Add Configuration	Click  to add a configuration item.

- Step 6** Click **Next**. The **configure subtasks** page is displayed.
  - Choose  or  to enable or disable **Scan user tables**.
  - Choose  or  to enable or disable **Scan systems tables**, including **information\_schema**.
  - Choose  or  to enable or disable **Scan column constraints** to check whether the constraints contain primary keys or whether there are unique constraints.
  - Choose  or  to enable or disable **Scan views** to check whether metadata contains views.

- Choose  or  to enable or disable **Scan column comments**.
- Click  or  to enable or disable **Scan permissions**.

**Step 7** Click **Next** to configure the task information. **Parameter description** describes the parameters required for configuring task information.

**Table 4-8** Parameters description

Parameter	Description
Task Details	<ul style="list-style-type: none"><li>• <b>Task:</b> You can customize the name of a collection task. This parameter is mandatory.</li><li>• <b>Task Description:</b> Task description. This parameter is optional.</li></ul>
Task Settings	Click  or  to enable or disable <b>Delete disconnected metadata</b> .
When to Execute	<ul style="list-style-type: none"><li>• <b>Identification Period:</b> You can select <b>Once</b>, <b>Daily</b>, <b>Weekly</b>, or <b>Monthly</b>.</li><li>• <b>When to Execute:</b> You can select <b>Now</b> or <b>As scheduled</b>.</li></ul>

**Step 8** Click **Next**. On the configuration confirmation page that is displayed, confirm the parameters.

**Step 9** Click **Finish**. A new metadata collection task is created.

----End

## 4.3.2 Running a Metadata Collection Task

You can view and execute a created metadata collection task.


### Prerequisites

A metadata collection task has been created.

### Procedure

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Asset Management > Metadata Task**. The metadata collection task page is displayed.

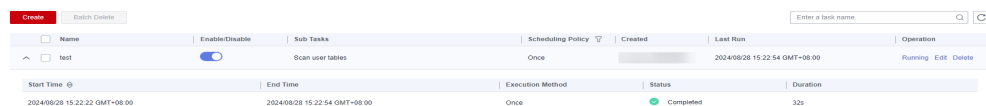


**Table 4-9** Parameters of a metadata collection task

Parameter	Description
Name	Metadata collection task name
Enable/Disable	Enabling or disabling the current task
Sub Tasks	Sub-task name
Scheduling Policy	You can select <b>Once</b> , <b>Daily</b> , <b>Weekly</b> , or <b>Monthly</b> .
Created	ID of user who created the task
Last Run	Last running time of a task

**Step 5** Click **Running** in the **Operation** column to run the created metadata collection task.

**Figure 4-11** Running a metadata collection task



**Step 6** Click **▼** on the left of a metadata collection task to view the task running details. **Parameter description** describes the parameters of the running details of a metadata collection task.

**Table 4-10** Parameter description

Parameter	Description
Start Time	Time when a task starts to be executed
End Time	Time when a task ends.
Execution Method	<b>Once</b> , <b>Daily</b> , <b>Weekly</b> , or <b>Monthly</b>

Parameter	Description
Status	Running status of the current task. The options are as follows: <ul style="list-style-type: none"><li>• <b>Completed:</b> The metadata collection task has been completed.</li><li>• <b>Running:</b> The metadata collection task is running.</li><li>• <b>Failed:</b> The metadata collection task fails to be executed.</li><li>• <b>Scheduling:</b> The metadata collection task has been added and is to be executed.</li><li>• <b>Partially completed:</b> The metadata collection task has been partially completed.</li></ul>
Duration	Duration from the time when a task starts to run to the time when the task ends.

----End

## Related Operations

You can click **Edit** or **Delete** in the **Operation** column to edit or delete a metadata collection task

## 4.4 Data Exploration

You can view details about all the added data assets and add descriptions, tags, security levels, and classifications to databases, tables, and data views to manage data assets by level and classification.


### Prerequisites

- DSC has been allowed to access the database assets. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Metadata has been scanned. For details, see [Metadata Tasks](#).

### Procedure

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance** > **Data Security Center**.

**Step 4** In the navigation pane, choose **Asset Management > Data Exploration**.

**Step 5** Select a display mode from the drop-down list box in the upper left corner.

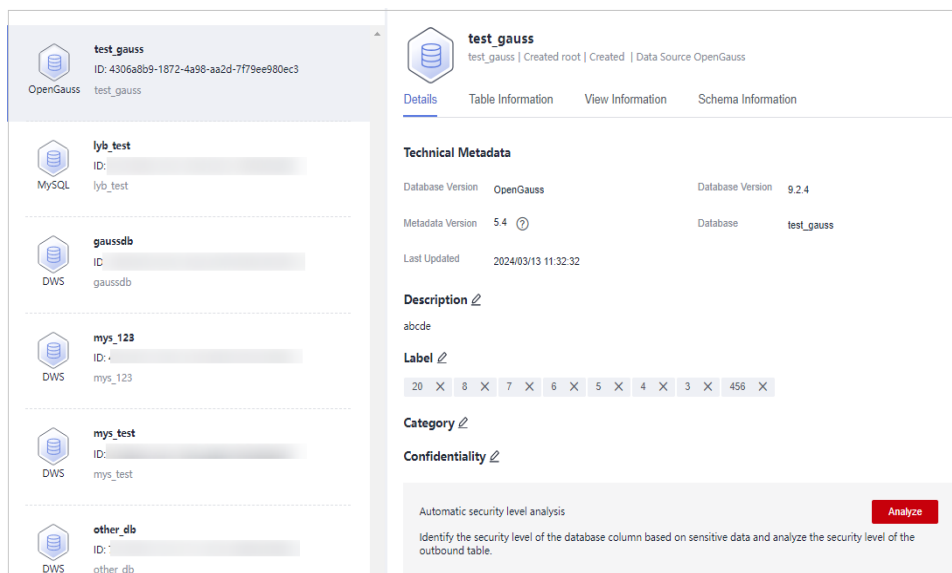
- **Database**
- **Schema**
- **Table**
- **Data Column**

**Step 6** Click a database name.


You can add descriptions, labels, security levels, and categories to databases, data tables, and data views.



Click **Analyze** to perform automatic security level analysis. The security levels of databases and tables are determined based on their column security levels generated in the sensitive data identification results.

**Figure 4-12** Database details



**Step 7** View detailed information about the database.

- Click the **Table Information** tab.
  - a. Click a table name to view the table details.
  - b. Click the database name to return to the upper-level page.
  - c. Click the **Table Information** tab, select a table, and click **Identifier** in the upper left corner to add a table identifier.
  - d. Click  to add information such as the category, security level, label, and description to the table.
- Select the **View Information** tab:
  - a. Click the view name to view the view details.
  - b. Click the database name to return to the upper-level page.
  - c. Click the **View Information** tab, select a view, and click **Identifier** in the upper left corner to add a view identifier.

- d. Click  to add information such as the category, security level, label, and description to the view.
- Click the **Schema Information** tab (this tab is displayed only when the database has schemas).
  - a. Select a schema and click **Identifier** in the upper left corner to add a column identifier.
  - b. Click  to add information such as the category, security level, label, and description to the column.

----End

## Related Operations

Enter a database name, database table name, data table column name, or template name in the search box to search for the database information you want to view.

You can also select a template, template category, or security level at the bottom of the search box to filter the database information you want to view.

## 4.5 Asset Catalog

The asset catalog collects statistics on sensitive information about assets from two dimensions: **service domain** and **data type**. It allows users to view sensitive information from three dimensions: **database**, **table**, and **column**.


### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Specific assets have been added or authorized. For details, see [Asset Center](#).

### Viewing the Asset Catalog

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance** > **Data Security Center**.

**Step 4** In the navigation pane, choose **Asset Management** > **Asset Catalog**.

**Step 5** On the **Service Domain** or **Data Type** tab page, view the added data asset information. [Data catalog parameters](#) describes related parameters.

You can select a group of data asset on the left to view statistics of a specific data asset on the **Service Domain** tab page, or select a data type on the left tree to view data asset of a data type on the **Data Type** tab.

**Table 4-11** Data catalog parameters

Parameter	Description
Statistics	<p>Click <b>View Details</b>. On the <b>Sensitive Data Statistics</b> page, statistics are displayed in three dimensions: category, level, and database.</p> <ul style="list-style-type: none"> <li>• Sensitive databases/Total databases: the percentage of sensitive databases in all databases.</li> <li>• Sensitive tables/Total tables: the percentage of sensitive data tables in all data tables.</li> <li>• Sensitive data columns/Total columns: the percentage of sensitive data columns in all data columns.</li> </ul> <p><b>NOTE</b> <b>WoW</b> indicates the data changes compared with the previous week.</p>
Percentage of Different Levels of Data	<p>Pie chart showing the proportion of sensitive data columns of different security levels in the total data columns</p> <p>Click <b>View Details</b>. On the <b>Sensitive Data Statistics</b> page, statistics are displayed in three dimensions: category, level, and database.</p>
Top 5 Categories	<p>Top 5 data type with the highest proportion</p> <p>Click <b>View Details</b>. On the <b>Categorization Result Details</b> page, view the statistics.</p>
Data Volume	<p>Line chart showing the change of data volume over time</p> <p>Click <b>View Details</b>. On the <b>Sensitive Data Statistics</b> page, statistics are displayed in three dimensions: category, level, and database.</p>


Parameter	Description
Database Scale Table	<p>Displays the number of databases, tables, and columns that contain sensitive data in a database instance. For details, see <a href="#">Viewing Database Instance Details</a>.</p> <ul style="list-style-type: none"><li>● <b>Database Instance/ID:</b> Database instance name or ID.</li><li>● Host port: host port number</li><li>● User: username</li><li>● <b>Sensitive Databases:</b> Number of databases in the instance that contain sensitive data.</li><li>● <b>Sensitive Tables:</b> Number of tables in the instance that contain sensitive data.</li><li>● <b>Sensitive Columns:</b> Number of columns in the instance that contain sensitive data.</li></ul>

----End

## Viewing Database Instance Details

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Asset Management > Asset Catalog**.

**Step 5** Click the **Service Domain** or **Data Type** tab.

**Step 6** Select a group table or data type on the left and click the database instance name in the **Database Scale Table** list. The **instance Details** page is displayed.

View information about all databases in the instance, including the **Database Name, Total Tables, Sensitive Tables, Sensitivity Level, Tag, and Last Scan Time**.

Click the database name. The **Database Details** page is displayed, including the **Basic Information** and **Database Tables** tab pages.

- The **Basic Information** tab page displays information such as the database type, version, and name. Click **Analyze** to perform automatic security level analysis. The security levels of databases and tables are determined based on their column security levels generated in the sensitive data identification results.

- The **Database Tables** tab page displays the data table name, number of table columns, associated schema, category, and sensitivity level. Click to view details.

**Figure 4-13** Instance details



Database	Total Tables	Sensitive Tables	Sensitivity Level	Label	Last Scanned
range_test 2b0b081b-825a-448a-9d54-9c475b7b0a45	4	4	L4		May 17, 2024 15:31:50 GMT+08:00

----End

# 5 Sensitive Data Identification

---

## 5.1 Overview of Sensitive Data Identification

Sensitive data identification automatically identifies sensitive data and analyzes the usage of such data. With data identification engines, structured data (RDS and DWS) and unstructured data (OBS) is scanned and classified. It then automatically identifies sensitive data and analyzes the usage of such data for further ensuring security.

### Constraints

For Hive data in MRS, sensitive data can be identified only when **Match Type** is Rule **matching** and **Rule** is **Content > Include**.



## Process

Figure 5-1 Flowchart

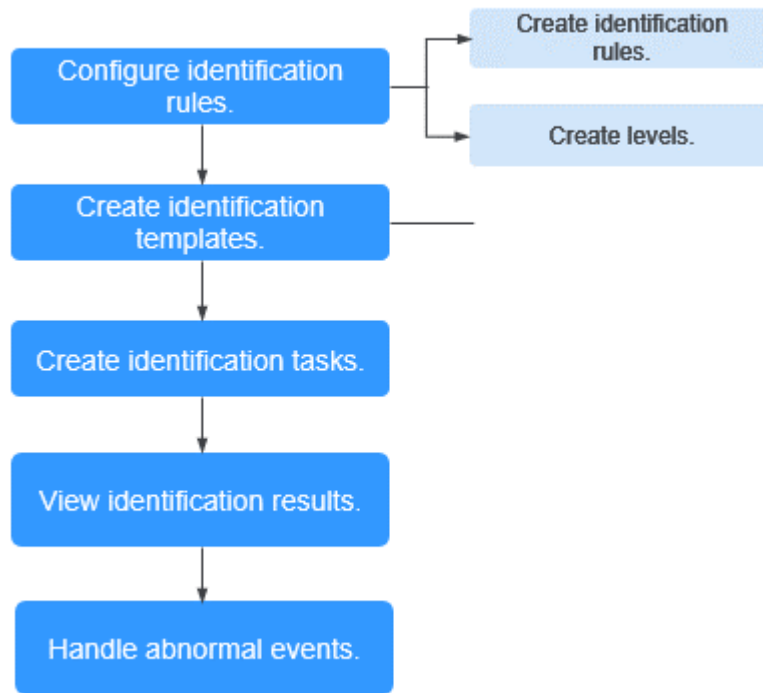


Table 5-1 Functions

Function	Description	Related Operations
Identification Rule	Built-in data identification rules of Data Security Center of Huawei Cloud can be used. In addition, you can also customize new rules to classify scattered data based on identification rules. These rules are mandatory for creating identification templates.	<a href="#">Customizing a Rule</a>
Sensitivity Configuration	The built-in data security levels of Huawei Cloud Data Security Center are available. In addition, you can also customize new levels to classify rules.	<a href="#">Customizing a Level</a>

Function	Description	Related Operations
Identification Template	The built-in templates according to the Huawei Cloud data security classification and grading standard and best practices are provided. In addition, you can customize new classification and grading templates to manage scattered rules in a unified manner. These templates are mandatory for creating identification tasks.	<a href="#">Creating an Identification Template</a>
Identification Task	Based on the created identification task, DSC automatically identifies sensitive data in a specified database, OBS bucket, big data source, LTS, or MRS, and generates identification results and reports.	<a href="#">Creating a Sensitive Data Identification Task</a>
Viewing or Downloading the Identification Result	After the scanning is complete, you can view the identification result in the identification task list or download the identification result to the local PC.	<a href="#">Identification Results</a>

## 5.2 Sensitive Data Identification Configuration

### 5.2.1 Creating an Identification Template


By default, DSC provides a built-in identification template. You can create or copy a template to customize a new identification template. This topic describes how to add an identification template.


#### Constraints

- An identification template cannot be deleted after being created.
- A maximum of 20 identification templates can be created for an account.

#### Procedure

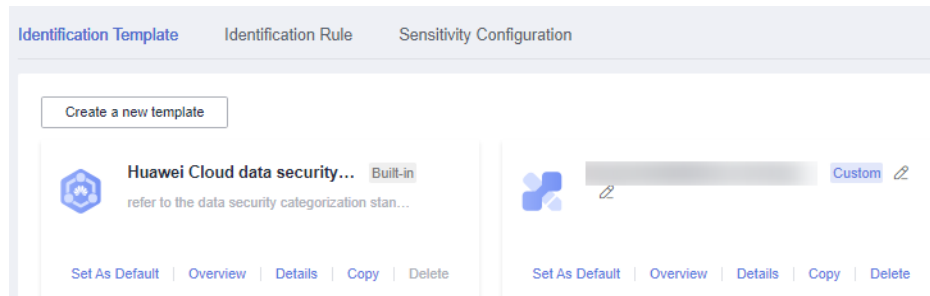
**Step 1** Log in to the management console.

**Step 2** Click  in the upper left corner of the management console and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

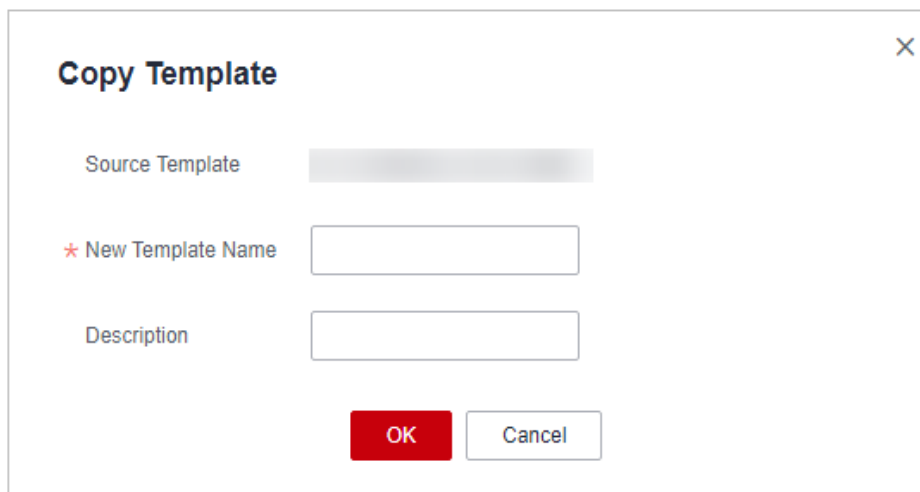
**Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**, as shown in [Figure 5-2](#).

**Figure 5-2** Identification templates



**Step 5** Locate the target template, Click **Copy**. In the displayed **Copy Template** dialog box, enter the new template name and description, as shown in [Figure 5-3](#).

**Figure 5-3** Replicating a template



**Step 6** Click **OK**.

----End

## Related Operations

- Click **Set As Default** to set the template as the default template.
- Click **Overview** to view the template type and level.

## 5.2.2 Managing Identification Templates







You can modify a customized template by following the instructions in [Modifying an Identification Template](#).

You can modify the rule category by following the instructions in [Modifying a Template Rule Category](#)

## Constraints

A built-in template and the default identification template cannot be deleted.

## Modifying an Identification Template

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**. The **Identification Template** tab page is displayed.
- Step 5** Locate the target template, click **Details**. The template details page is displayed.
- Click  after **All** to create a category.
  - Move the cursor to a category name:
    - Click  to edit the category name.
    - Click  to delete a category name.
  - Click a category name on the left tree and view related category rules on the right. You can select multiple category names.
  - Click **Add Rule** in the upper left corner. For details, see [Customizing a Rule](#).
  - Click **Batch Delete** to delete the selected rules.
  - Click  in the **Status** column to enable or disable the rule.
  - Click **Details** in the **Operation** column to edit the rule content.
  - Click **Delete** in the **Operation** column to delete a rule.
- End

## Modifying a Template Rule Category



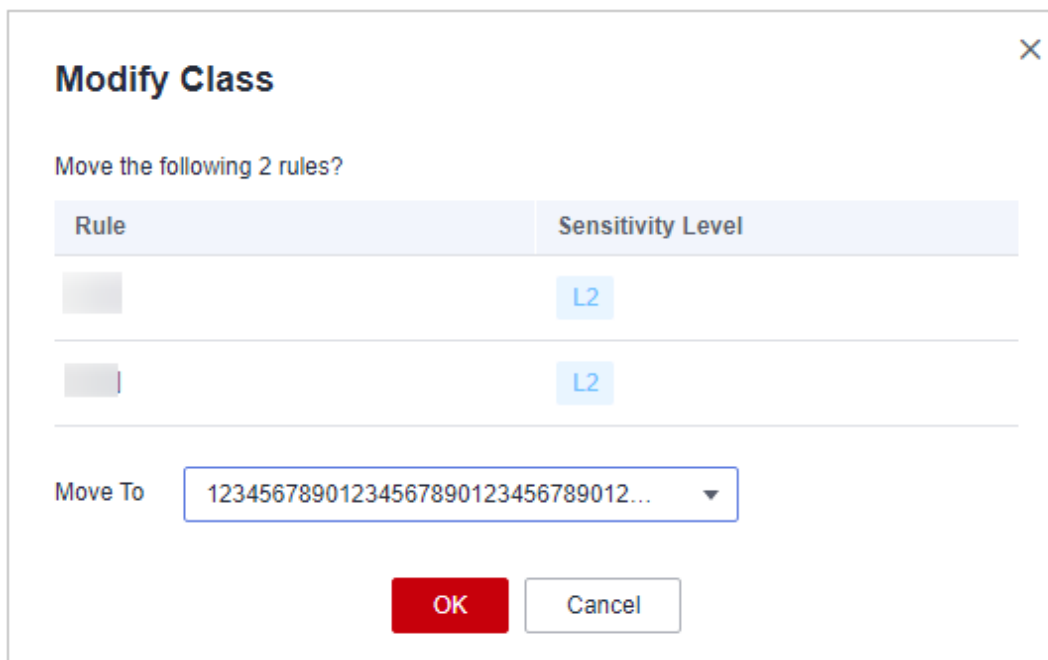
- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**. The **Identification Template** tab page is displayed.
- Step 5** Locate the target template, click **Details**. The template details page is displayed.
- Step 6** Select the rules whose categories are to be modified.
- Step 7** Click **Modify Class** in the upper left corner of the rule list. In the displayed dialog box, select the target category.

Figure 5-4 Modifying the category



- Step 8** Click **OK**. A message is displayed, indicating that the rule categories are modified.  
----End

### 5.2.3 Customizing a Rule

Sensitive data identification rules include built-in rules and user-defined rules. You can select built-in or customized identification rules when creating or editing an identification template.

#### Procedure



- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**.
- Step 5** Click the **Identification Rule** tab, as shown in [Figure 5-5](#).

Figure 5-5 Identification rules




**Step 6** Click **Create a user-defined rule** in the upper left corner of the page.

**Step 7** In the displayed dialog box, set required parameters based on [Table 5-2](#).

**Table 5-2** Parameter description

Parameter	Description
Rule	You can customize a rule name. The rule name must meet the following requirements: <ul style="list-style-type: none"><li>• Contain 1 to 255 characters.</li><li>• Consist of letters, digits, underscores (_), hyphens (-), and brackets.</li><li>• Be unique.</li></ul>
Description	Enter a rule description.
Add to Template	<ul style="list-style-type: none"><li>• Select the template name, template rule category, and level from the drop-down list boxes to add the rule to a rule template.</li><li>• Click <b>Add</b> to add the rule to multiple templates.</li><li>• Click the deletion button to delete the template. Retain at least one template.</li></ul>
Match Type	This parameter can be set to <b>Rule matching</b> or <b>Keyword matching</b> . <ul style="list-style-type: none"><li>• <b>Keyword matching</b> indicates that the rule can be executed using keywords.</li><li>• <b>Regular matching</b> is used to match (specify and identify) characters, words, and patterns.</li></ul> <b>NOTE</b> For Hive data in MRS, sensitive data can be identified only when <b>Match Type</b> is <b>Rule matching</b> and <b>Rule</b> is <b>Content &gt; Include</b> .
Matching Logic	Select the matching logic: <ul style="list-style-type: none"><li>• <b>AND</b>: All keywords are included.</li><li>• <b>OR</b>: Only one keyword is included.</li></ul>
Rule	This parameter is displayed when <b>Match Type</b> is set to <b>Rule Matching</b> . Select the rule content from the drop-down list box. <b>NOTE</b> For Hive data in MRS, sensitive data can be identified only when <b>Match Type</b> is <b>Rule matching</b> and <b>Rule</b> is <b>Content &gt; Include</b> .

Parameter	Description
Test Rule	<ul style="list-style-type: none"> <li>This parameter is displayed when <b>Match Type</b> is set to <b>Rule Matching</b>.</li> <li>Enter the rule content and click <b>Test</b>. The test result of the rule is displayed in the <b>Test Result</b> area.</li> <li>You can click <b>Add</b> to add multiple rules for test.</li> <li>Both built-in rules and user-defined rules support rule tests. To test a built-in rule, click <b>Details</b> in the <b>Operation</b> column of the rule list. On the <b>Edit Rule</b> page, enter the rule for test.</li> </ul> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>Image rules cannot be tested.</li> <li>The rule test is not supported when the <b>Match Type</b> is <b>Keyword matching</b>.</li> <li>Only the first matching result of the test content is displayed.</li> </ul>
Content	<ul style="list-style-type: none"> <li>This parameter is displayed when <b>Match Type</b> is set to <b>Keyword Matching</b>.</li> <li>Multiple keywords are separated by line breaks.</li> </ul>
Identification Threshold Configuration	Applicable to unstructured data. You can click  to select a low, medium, or high threshold. A higher threshold requires more hits.
Hit Rate	Applicable to structured data. You can drag the slider to set this parameter.


**Step 8** Click **OK**.


----End

## 5.2.4 Editing a Rule

### Procedure

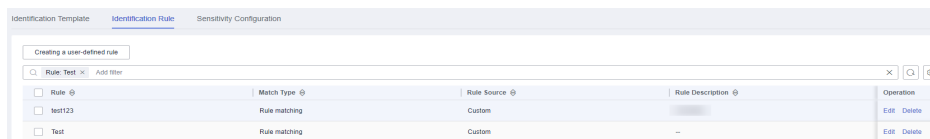
**Step 1** Log in to the management console.

**Step 2** Click  in the upper left corner of the management console and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**.

**Step 5** Click the **Identification Rule** tab, as shown in [Figure 5-6](#).

**Figure 5-6** Identification rules

**Step 6** In the **Operation** column of the target rule, click **Edit** to view and modify the rule. You can modify the values of the following parameters in a built-in rule: **Add to Template**.

----End



## 5.2.5 Adding a Sensitive Level

DSC provides four built-in sensitive data levels: L1 to L4. You can customize a level by following the instructions in this topic.

### Constraints

A maximum of 20 security levels can be created.

### Procedure

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**.
- Step 5** Click the **Sensitivity Configuration** tab and click **Adding a Level** in the upper left corner.
- Step 6** In the displayed dialog box, set required information based on [Table 5-3](#).

**Table 5-3** Parameter description

Parameter	Description
Level	Enter a user-defined level name.
Level Color	You can select a color based on the sensitivity level. A higher level color value indicates a higher sensitivity. For example, name and gender are low-sensitivity data, and the ID card number and encryption key are high-sensitivity data.



**Figure 5-7** Sensitivity Configuration

**Step 7** Click **OK**.

----End


## 5.2.6 Managing Levels


This section describes how to modify or disable a level.

### Editing a Level

You can edit the content of a custom level only.

**Step 1** Log in to the management console.

**Step 2** Click  in the upper left corner of the management console and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**.

**Step 5** Click the **Sensitivity Configuration** tab to view the level configuration list, as shown in [Figure 5-8](#).

**Figure 5-8** Sensitivity Configuration

Level Name	Level Color	Level Source	Number of References	Description	Operation
ds		Custom	0	-	<a href="#">Edit</a> <a href="#">Disable</a> <a href="#">Delete</a>

**Step 6** Locate the target level to be modified, click **Edit** in the **Operation** column, and modify the level information.


**Step 7** Click **OK** to save the modification.


----End

## Disabling a Level

A built-in level cannot be disabled.

**Step 1** Log in to the management console.

**Step 2** Click  in the upper left corner of the management console and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Configuration**.

**Step 5** Click the **Sensitivity Configuration** tab to view the level configuration list, as shown in [Figure 5-9](#).

**Figure 5-9** Sensitivity Configuration



Level Name	Level Color	Level Source	Number of References	Description	Operation
ds	Green	Custom	0	-	Edit Disable Delete

**Step 6** Locate the target level to be disabled, click **Disable** in the **Operation** column.

### NOTE

- Disabled levels are not displayed when you create or edit a template.
- To enable a level, click **Enabled** in the **Operation** column of the row that contains the level.

----End

## 5.3 Sensitive Data Identification Tasks

### 5.3.1 Creating an Identification Task

Based on the created identification task, DSC automatically identifies sensitive data in a specified database, OBS bucket, big data source, LTS, or MRS, and generates identification results and reports.



This topic describes how to create an identification task.

#### Prerequisites

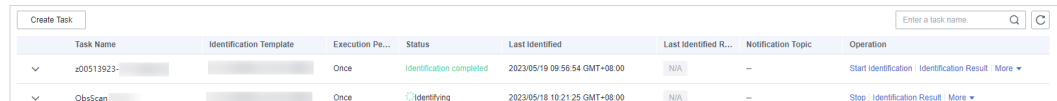
- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Specific assets have been added or authorized. For details, see [Asset Center](#).

#### Creating an Identification Task

**Step 1** Log in to the management console.

- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-10](#).

**Figure 5-10** Identification tasks




Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
id0513923-		Once	Identification completed	2023/05/19 09:58:54 GMT+08:00	N/A	--	Start Identification Identification Result More
ObsScan		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop Identification Result More

- Step 5** In the upper left corner of the task list, click **Create Task**.
- Step 6** In the displayed dialog box, set required parameters based on [Table 5-4](#).

**Table 5-4** Parameter description

Parameter	Description	Example Value
Task Name	<p>You can customize the task name.</p> <p>The task name must meet the following requirements:</p> <ul style="list-style-type: none"> <li>Contain 4 to 255 characters.</li> <li>Consist of letters, digits, underscores (<code>_</code>), and hyphens (<code>-</code>).</li> <li>The name must start with a letter.</li> <li>Be unique.</li> </ul>	Test task_01

Parameter	Description	Example Value
Sensitive Data	<p>Type of data to be identified. You can select multiple types.</p> <ul style="list-style-type: none"><li>• <b>OBS</b>: DSC is authorized to access your Huawei Cloud OBS assets and identify sensitive data in the assets. For details about how to add OBS assets, see <a href="#">Adding OBS Assets</a>.</li><li>• <b>Database</b>: DSC identifies sensitive data of authorized database assets. For details about how to authorize DSC to access your database assets, see <a href="#">Authorizing Access to Database Assets</a>.</li><li>• <b>Big data</b>: DSC identifies sensitive data of authorized big data assets. For details about how to authorize DSC to access your big data assets, see <a href="#">Authorizing Access to Big Data Assets</a>.</li><li>• <b>MRS</b>: DSC identifies sensitive data of authorized big data assets. For details about how to authorize DSC to access your MRS assets, see <a href="#">Authorizing Access to Big Data Assets</a>.</li><li>• <b>LTS</b>: DSC identifies sensitive data of authorized LTS assets. For details about how to add log streams, see <a href="#">Adding a Log Stream</a>.</li></ul>	Database
Identification Template	<p>You can select a built-in or custom template. DSC displays data by level and category based on the template you select. For details about how to add a template, see <a href="#">Creating an Identification Template</a>.</p>	Huawei Cloud Data Security Classifying and Grading Template
Identification Scope	<p>This parameter is displayed when <b>Data Type</b> is set to <b>LTS</b>. Set this parameter to 1 day, 2 days, or 3 days.</p>	1 day
Identification Intensity	<p>This parameter is displayed when <b>Data Type</b> is set to <b>LTS</b>. Select the log identification intensity, which can be <b>High</b>, <b>Medium</b>, or <b>Low</b>. A higher intensity indicates more sampled data.</p>	Low

Parameter	Description	Example Value
Identification Period	<p>Set the execution policy of the data identification task.</p> <ul style="list-style-type: none"><li>• <b>Once:</b> The task will be executed once at a specified time.</li><li>• <b>Daily:</b> The task is executed at a fixed time every day.</li><li>• <b>Weekly:</b> The task is executed at a specified time every week.</li><li>• <b>Monthly:</b> The task is executed at a specified time every month.</li></ul>	Once
When to Execute	<p>This parameter is displayed when <b>Identification Period</b> is set to <b>Once</b>.</p> <ul style="list-style-type: none"><li>• <b>Now:</b> Select the option and click <b>OK</b>, the system executes the data identification task immediately.</li><li>• <b>As scheduled:</b> The task will be executed at a specified time.</li></ul>	Now
Start Time	<p>This parameter is displayed when <b>Identification Period</b> is set to <b>Daily</b>, <b>Weekly</b>, or <b>Monthly</b>.</p> <p>Select the time when the task is being executed. After the time is selected, the task is executed every day, every week, every month, or at the specified time.</p>	
(Optional) Topic	<ul style="list-style-type: none"><li>• Select an existing topic from the drop-down list or click <b>View Topic</b> to create a topic for receiving alarm notifications.</li><li>• If you do not configure a topic, you can view the identification result in the identification task list. For details, see <a href="#">Identification Results</a>.</li></ul>	None

**Step 7** (Optional) If you need to set the scan scope for the added assets, see section [Adding an Identification Scope](#).



**Step 8** Click **OK**. A message is displayed indicating the task is created successfully.

----End

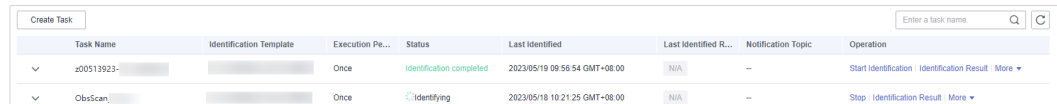
## Adding an Identification Scope

By default, DSC performs a global scan on the selected assets. You can also add a scan scope by referring to this section.

**Step 1** Log in to the management console.

- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-11](#).

**Figure 5-11** Identification tasks



Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
s00513923-		Once	Identification completed	2023/05/19 09:56:54 GMT+08:00	N/A	--	Start Identification Identification Result More ▾
ObsScan		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop Identification Result More ▾

- Step 5** Click **Create Task**. The **Create Task** page is displayed.
- Step 6** Select the data type, select the name of the asset to be scanned, and click **OK**.
- Step 7** In the lower left corner of the page, click the button to add an identification scope. You can add multiple scopes at the same time. For details about the parameter settings, see [Table 5-5](#).

**Table 5-5** Parameters for configuring the scan scope

Asset Type	Configuration Parameter	Description
OBS	Asset	Select the bucket to be scanned from the drop-down list. You can select multiple buckets.

Asset Type	Configuration Parameter	Description
	Scan Scope	<ul style="list-style-type: none"> <li>• <b>File name prefix:</b> For example, if the prefix is <i>dsc_</i>, all files with the prefix <i>dsc_</i> are scanned. A maximum of one inclusion condition can be added for the file name prefix.</li> <li>• <b>File name extension:</b> The file name extension contains the file type following the dot (.). For example, the file name extension <i>dsc_security.txt</i> can be <i>security.txt</i> or <i>.txt</i>. Only the files that meet all the filtering conditions are scanned. A maximum of one inclusion condition can be added for the file name extension.</li> <li>• <b>Directory name:</b> Specifies the directory to be scanned. All files in the specified directory are scanned. A maximum of one inclusion condition can be added for the directory.</li> </ul> <p>After entering the file name prefix/suffix/directory name, click <b>Add as Inclusion Condition</b> to add it as an inclusion condition.</p> <p>For example, if you select the <b>File name prefix</b>, enter the prefix <i>dsc_</i>, and click <b>Add as Inclusion Condition</b>, only the files whose file name prefix is <i>dsc_</i> are scanned. If you click <b>Add as Exclusion Condition</b> to as the prefix as an exclusion condition, only files whose prefixes are not <i>dsc_</i> are scanned.</p>
	Scan Depth	<ul style="list-style-type: none"> <li>• <b>Global Scan:</b> If this parameter is selected, all data is scanned.</li> <li>• <b>Specify Scan Scope:</b> You can also select <b>Specify Scan Scope</b> and enter the <b>Scan Depth</b>. The depth of the root directory starts at 1 and increases incrementally. However, it must not surpass a depth of 10.</li> </ul>
Database/Big Data/MRS	Asset	Select an instance name from the drop-down list. You can select multiple instances.

Asset Type	Configuration Parameter	Description
	Scan Scope	<ul style="list-style-type: none"> <li>• <b>Table name prefix:</b> A maximum of one inclusion condition can be added for the table name prefix. For example, if you enter <i>dsc_</i> as the prefix of a table name and click <b>Add as Inclusion Condition</b> only the table data whose prefix is <i>dsc_</i> is scanned. If you click <b>Add as Exclusion Condition</b> to as the prefix as an exclusion condition, only tables whose prefixes are not <i>dsc_</i> are scanned.</li> <li>• <b>Table name suffix:</b> A maximum of one inclusion condition can be added for the table name suffix. The principle is the same as that of the prefix.</li> </ul>
LTS	Asset	Select an instance name from the drop-down list. You can select multiple instances.
	Scan Scope	<ul style="list-style-type: none"> <li>• <b>Key prefix:</b> If this parameter is added as an inclusion condition, the log content that contains the key prefix is scanned. If this parameter is added as an exclusion condition, the log content except the key prefix is scanned.</li> <li>• <b>Key suffix:</b> The principle is the same as that of the key prefix.</li> </ul> <p><b>NOTE</b></p> <ul style="list-style-type: none"> <li>- A maximum of one inclusion condition can be added for each of the key prefix and suffix.</li> <li>- A maximum of 10 exclusion conditions can be added for key prefixes and suffixes.</li> </ul>



**Figure 5-12** OBS scan scope configuration

----End

## Follow-up Procedure

**Viewing the Identification Result:** After the sensitive data identification task is complete, you can click **Identification Result** in the **Operation** column of the row containing the target task, to view the total number of sensitive information items, risk level, and sensitive information classification and grading result of the data assets.



### 5.3.2 Starting a Task

DSC can repeatedly execute an identification task. You can start an identification task by following the instruction in this topic.

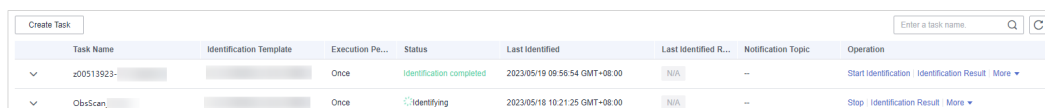
#### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Specific assets have been added or authorized. For details, see [Asset Center](#).

## Procedure

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-13](#).

**Figure 5-13** Identification tasks



Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
z00513923-		Once	Identification completed	2023/05/19 09:56:54 GMT+08:00	N/A	--	Start Identification Identification Result More ▾
ObsScan		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop Identification Result More ▾

- Step 5** Locate the task to be started and click **Start Identification** in the **Operation** column. If a message is displayed in the upper right corner, indicating that the scan task starts, the operation is successful.

### NOTE

If you want to stop an ongoing task, click **Stop** in the **Operation** column of the row containing the target task.

----End

## Follow-up Procedure

**Viewing the Identification Result:** After the sensitive data identification task is complete, you can click **Identification Result** in the **Operation** column of the row containing the target task, to view the total number of sensitive information items, risk level, and sensitive information classification and grading result of the data assets.


## 5.3.3 Identification Tasks


You can view details about the sensitive data identification task in the task list.

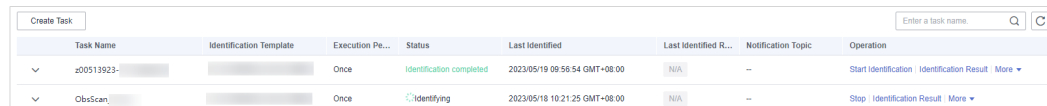
### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Specific assets have been added or authorized. For details, see [Asset Center](#).

### Viewing the Identification Task List


- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.

- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane on the left, click **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-14](#). [Table 5-6](#) describes the parameters.

**Figure 5-14** Identification Tasks


Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
z00513923-		Once	Identification completed	2023/05/19 09:56:54 GMT+08:00	N/A	--	Start Identification   Identification Result   More
ObsScan		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop   Identification Result   More

**Table 5-6** Identification task parameters


Parameter	Description
Task Name	<p>Identification task name</p> <p>Click  on the left of a task name to view the scanning time and task status. In the <b>Operation</b> column of a specific object, you can perform the following operations:</p> <ul style="list-style-type: none"> <li>Click <b>Stop</b> to stop an identification task.</li> <li>Click <b>Start Identification</b> to start an identification task.</li> <li>Click <b>Identification Result</b> to view the identification result.</li> <li>Click <b>Delete</b> to delete an identification job.</li> </ul>
Identification Template	Identification template name
Execution Period	<p>Execution period of an identification task. The value can be:</p> <ul style="list-style-type: none"> <li><b>Once</b>: The task is executed only once.</li> <li><b>Daily</b>: The task is executed at a fixed time every day.</li> <li><b>Weekly</b>: The task is executed at a fixed time every week.</li> <li><b>Monthly</b>: The task is executed at a fixed time every month.</li> </ul>
Status	<p>Execution status of an identification task</p> <ul style="list-style-type: none"> <li><b>Pending identification</b>: The task is waiting to be started.</li> <li><b>Identifying</b>: The task is being executed.</li> <li><b>Identification completed</b>: All objects of the target task have been scanned.</li> <li><b>Identification failed</b>: At least one object of the target task fails to be scanned.</li> <li><b>Identification terminated</b>: The task that is being executed is forcibly stopped.</li> </ul>
Last Identified	Last execution time of the task.


Parameter	Description
Last Identified Result	Last scan result of the task, including the built-in level and custom level. For details, see <a href="#">Adding a Sensitive Level</a> .
Operation	<p>Operations provided in the <b>Operation</b> column:</p> <ul style="list-style-type: none"> <li>Execute an identification task immediately. For details, see <a href="#">Starting a Task</a>.</li> <li>View the identification result. Click <b>Identification Result</b> to go to the result details page. DSC provides a detailed result analysis report. For details, see <a href="#">Identification Results</a>.</li> <li>Start a task. When the task is closed, choose <b>More &gt; Start Task</b>. For details, see <a href="#">Starting a Task</a>.</li> <li>Stop a task. When the task is started, choose <b>More &gt; Stop Task</b>. For details, see <a href="#">Stopping an Identification Task</a>.</li> <li>Edit a task. Choose <b>More &gt; Edit</b>. For details, see <a href="#">Editing an Identification Task</a>.</li> <li>Delete a task. Choose <b>More &gt; Delete</b>. For details, see <a href="#">Deleting an Identification Task</a>.</li> </ul>

----End

## Editing an Identification Task

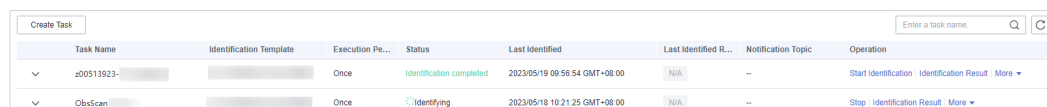
**Step 1** Log in to the management console.

**Step 2** Click  in the upper left corner of the management console and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-15](#).

**Figure 5-15** Identification Tasks





Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
z00513923-		Once	Identification completed	2023/05/19 09:56:54 GMT+08:00	N/A	--	Start Identification Identification Result More ▾
ObsScan		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop Identification Result More ▾

**Step 5** Locate the row that contains the target task and choose **More > Edit** in the **Operation** column.

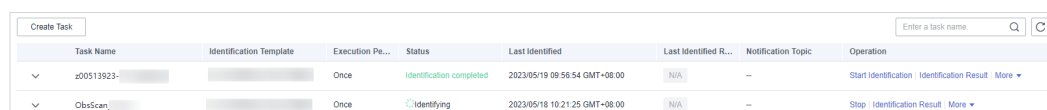
**Step 6** In the displayed dialog box, modify the task information and click **OK**.

----End

## Deleting an Identification Task

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-15](#).

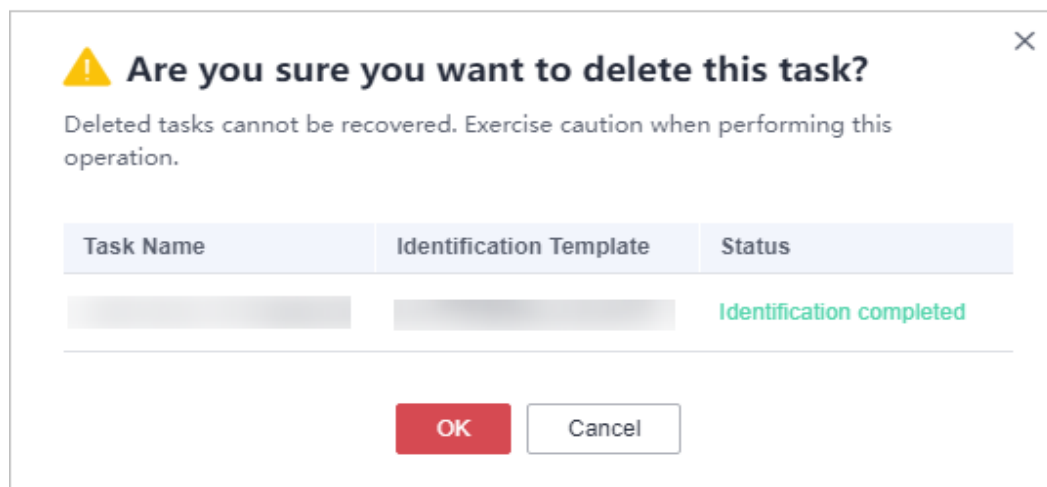
**Figure 5-16** Identification Tasks



Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
200513923-		Once	Identification completed	2023/05/19 09:56:54 GMT+08:00	N/A	--	Start Identification Identification Result More ▾
ObsScan-		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop Identification Result More ▾

- Step 5** Locate the row that contains the target task and choose **More > Delete** in the **Operation** column, as shown in [Figure 5-17](#).

**Figure 5-17** Confirming the deletion



- Step 6** In the displayed dialog box, click **OK**.



---

 **CAUTION**

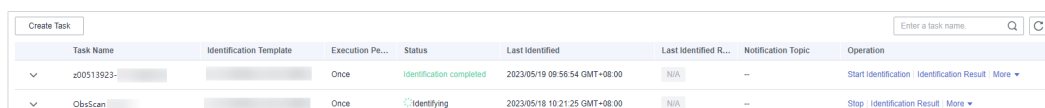
- If an identification task is running, stop the task or wait until the task is complete, then delete it.
  - The deletion cannot be undone.
- 

----End

## Stopping an Identification Task

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-15](#).

**Figure 5-18** Identification Tasks



Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
200513923-		Once	Identification completed	2023/05/19 09:56:54 GMT+08:00	N/A	--	Start Identification   Identification Result   More ▾
ObsScan-		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop   Identification Result   More ▾

- Step 5** Locate the row that contains the target task and choose **More > Stop Task** in the **Operation** column.

### NOTE

- A task in the **Identifying** status cannot be closed.
- The name of a closed task is displayed in gray, indicating that the task is closed.
- To start this task, click **More > Start Task** in the **Operation** column of the row containing the target task

----End



## 5.3.4 Identification Results

After completing the sensitive data identification task, you can view the results by clicking **Identification Result** in the **Operation** column of the corresponding task in the identification task list. The results will show the total number of sensitive information items, top 10 matched rules, and sensitive information categorizing and leveling results. You can download the result file to your local computer.

### Prerequisites

At least one sensitive data identification task has been executed.

## Viewing the Identification Result

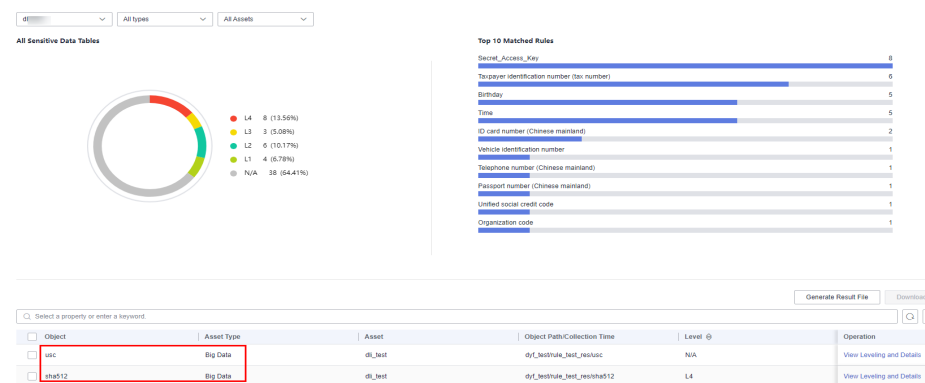
- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner of the management console and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-19](#).

**Figure 5-19** Identification tasks

Task Name	Identification Template	Execution Pe...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
z00513923-		Once	Identification completed	2023/05/19 09:58:54 GMT+08:00	N/A	--	Start Identification   Identification Result   More ▾
ObsScan-		Once	Identifying	2023/05/18 10:21:25 GMT+08:00	N/A	--	Stop   Identification Result   More ▾

**Step 5** Click **Identification Result** in the **Operation** column of the target task. The result details page is displayed, as shown in **Figure 5-20**.

**Figure 5-20** Identification result details



**Step 6** DSC collects statistics on the number and distribution of risk levels for different types of data sources, such as big data, database, OBS, LTS, and MRS.

Additionally, DSC offers a comprehensive identification result list for scanned objects. You can click the filter box in the upper left corner of the list and select filter items to refine sensitive data identification results by **object name**, **database name**, **table name**, **object path/collection time**, and **level**. **Table 5-7** describes the parameters in the identification result list.

**Table 5-7** Identification result parameters

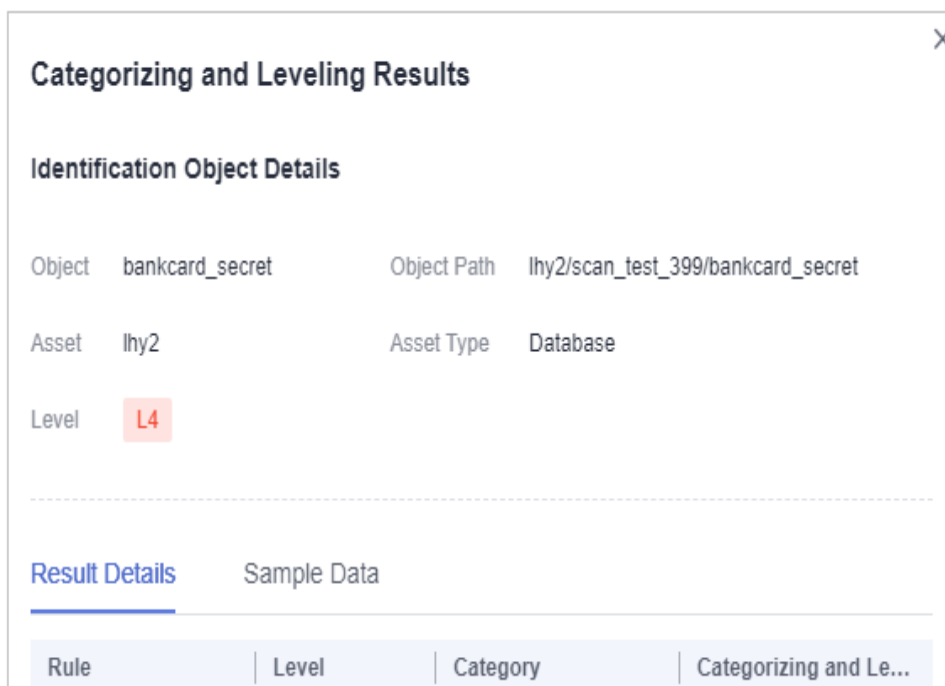
Parameter	Description
Asset	Name of the asset that can be identified
Asset Type	<ul style="list-style-type: none"> <li>● OBS</li> <li>● Database</li> <li>● Big Data</li> <li>● MRS</li> <li>● LTS</li> </ul>
Asset	Name of the asset containing sensitive information.
Database Name	Name of the database where sensitive information is identified.
Table Name	Name of the table where sensitive information is identified.
Object Path/Collection Time	Path for storing sensitive information and collection time.

Parameter	Description
Level	Sensitive information level.

**Step 7** In the row containing the desired scan object, click **View Leveling and Details** in the **Operation** column. The **Categorizing and Leveling Results** dialog box is displayed, as shown in **Figure 5-21**.

View the result details and sample data.

**Figure 5-21** Categorizing and leveling results




**NOTE**

- The **Categorizing and Leveling Result Details** page displays the identification object details and identification result details.
- The **Categorization and leveling result details** page displays the **identification object details, result details, and sample data**.
- The result details display the matching rule, leveling result, categorization result, and categorization and leveling template.


----End

## Downloading the Identification Result

**Step 1** Log in to the management console.

**Step 2** Click  in the upper left corner of the management console and select a region or project.



**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

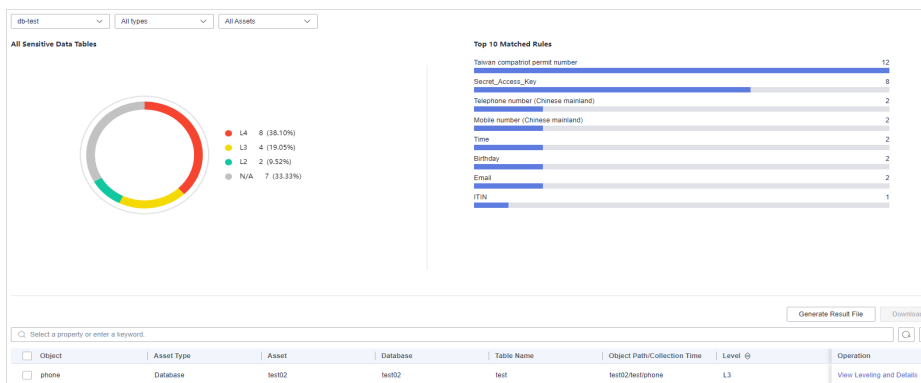
**Step 4** In the navigation pane, choose **Sensitive Data Identification > Identification Task**, as shown in [Figure 5-22](#).

**Figure 5-22** Identification tasks

Task Name	Identification Template	Execution Peri...	Status	Last Identified	Last Identified R...	Notification Topic	Operation
men		Once	Identification completed	2024/06/03 18:54:01 GMT+08:00	N/A	-	Start Identification Identification Result More ▾

**Step 5** Click **Identification Result** in the **Operation** column of the target task. The result details page is displayed, as shown in [Figure 5-23](#).

**Figure 5-23** Identification result details



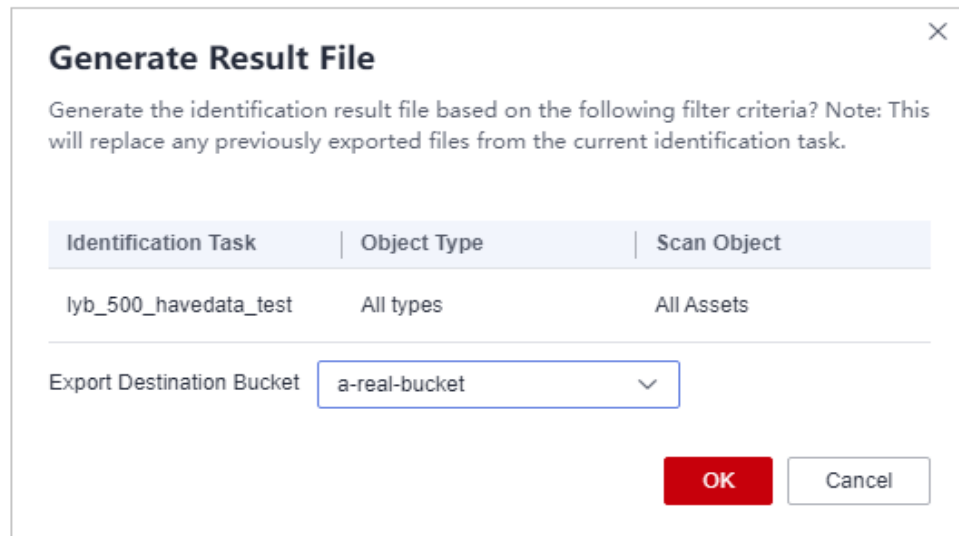
**Step 6** Click **Generate Result File** in the upper left corner. The **Generate Result File** dialog box is displayed, as shown in [Figure 5-24](#).

- **Identification task:** Name of the scan task.
- **Object Type:** Type of the object to be scanned.
- **Scan object:** Object to be scanned.
- **Export Target Bucket:** Select a bucket for storing the identification result from the drop-down list box. If no bucket is available in the drop-down list box, create a bucket by referring to [Creating an OBS Bucket](#). The *scan-results* folder is created in the root directory of the bucket to store the identification result.

 **NOTE**

The identification result list supports filtering.

OBS storage occupies certain storage space, which may incur fees. For details, see [OBS Billing Overview](#).

**Figure 5-24** Confirming the generation of the result file

**Step 7** Select **OK** to initiate the generation of the sensitive data scan report for the selected asset. A notification will appear in the upper right corner confirming the successful export of the identification result file. Subsequently, the status of the result file will be updated to **Queuing** or **Running**.

- The status of the generated result file is as follows:
  - **Running**: The result report is being generated.
  - **Queuing**: The generated task is queuing.
- If the **Download Identification Result** button is dimmed and the message "No valid file is available. Please generate a file first." is displayed, click **Generate Result File** and download it again.

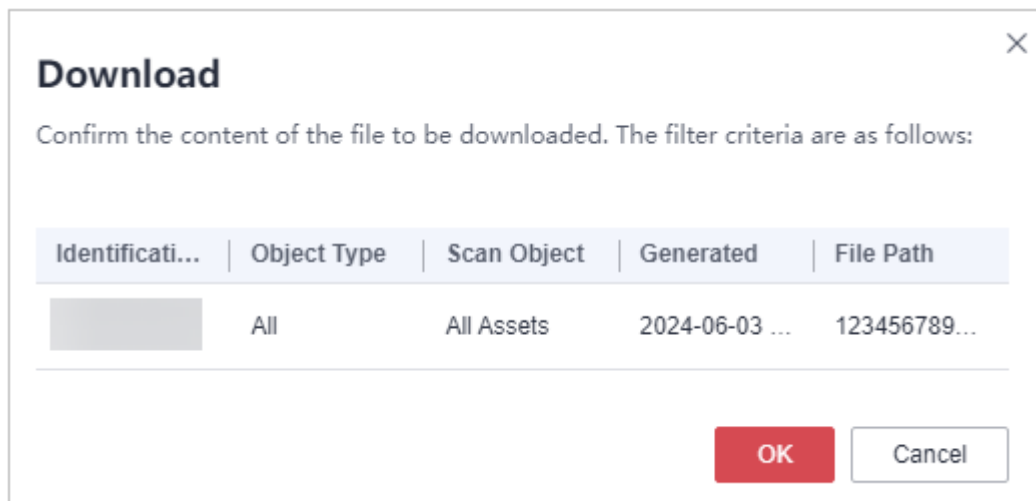
**NOTE**

Result files from various subtasks within the same identification task will replace one another upon generation.

**Step 8** Click **Download Identification Result**. The **Download Identification Result** dialog box is displayed. You can view the identification task name, scan object type, scan object, generation time, and file path contained in the downloaded report, as shown in [Figure 5-25](#).

**File path** is the OBS path for storing the identification result Excel file generated in [Step 7](#).

**Figure 5-25** Dialog box for downloading the identification result



**Step 9** Click **OK** to download the identification result to the local computer. For details about how to download historical identification results, see "Downloading an Object" in *OBS User Guide*.

On the identification result report Excel file, identification results are displayed on the **Asset Name** and **Asset Type** sheets. The key fields include **Rule**, **Level**, **Category**, and **Categorization and Leveling Template**, as shown in [Figure 5-26](#).

**Figure 5-26** Example of the identification result report

A	B	C	D	E
Object Path	Rule	Level	Category	Categorizing and Leveling Template

----End

# 6 Data Asset Protection

---

## 6.1 Data Masking

### 6.1.1 Overview

DSC supports static data masking and dynamic data masking. You can configure masking rules for specified data assets to implement static masking or use the [API for dynamic data masking](#) to implement dynamic data masking, ensuring that sensitive information is not disclosed. [Data Masking Algorithms](#) lists the data masking algorithms supported by DSC.

**Static data masking:** DSC can help mask a large amount of data at one time based on the configured data masking rules. Static data masking is used when sensitive data in the production environment is delivered to the development, testing, or external environment for development and testing and data sharing and research. You can create a data masking task on the DSC console to quickly mask sensitive data in databases and big data assets.

**Dynamic data masking:** DSC provides dynamic data masking APIs to mask the data accessed from the external systems. Dynamic data masking applies to scenarios where data is queried from the external system, such as production applications, data exchange, O&M applications, and precision marketing.

## Data Masking Process

Figure 6-1 Static data masking flowchart

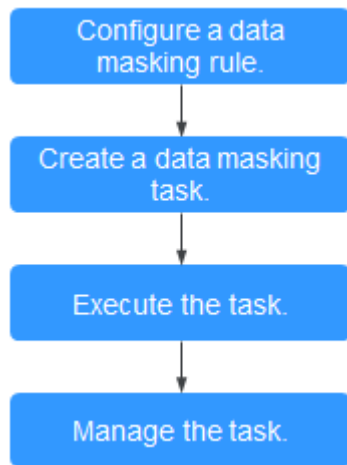
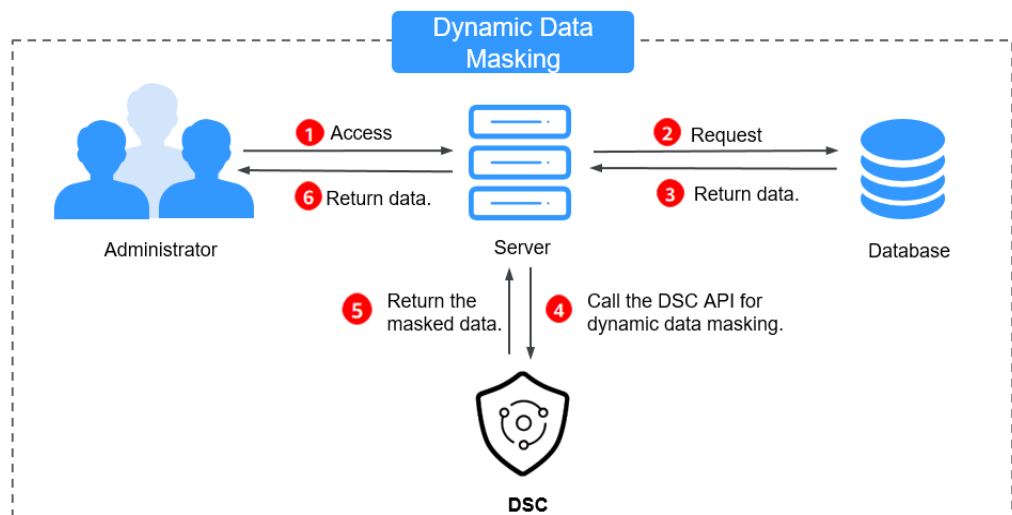


Figure 6-2 Dynamic data masking flowchart



## Data Masking Algorithms

Table 6-1 Masking algorithms

Data Masking Algorithms	Description	Application Scenarios
Hash	<p>Use Hash functions to mask sensitive data. DSC supports SHA-256 and SHA-512.</p> <ul style="list-style-type: none"><li>• SHA256 SHA-256, a message-digest algorithm, is used by DSC to compute a digest from a string in the database table. It takes a block of data and returns a fixed-size bit string (hash value). As the value length may exceed the maximum column width allowed in the original table, you can adjust the column width to adapt to the returned SHA-256 hash values.</li><li>• SHA512 SHA-512, a message-digest algorithm, is used by DSC to compute a digest from a string in the database table. It takes a block of data and returns a fixed-size bit string (hash value). As the value length may exceed the maximum column width allowed in the original table, you can adjust the column width to adapt to the returned SHA-512 hash values.</li></ul>	<ul style="list-style-type: none"><li>• Sensitive data: Key information</li><li>• Application scenario: data storage</li></ul>
Encryption	<p>Use an encryption algorithm and an encryption master key to generate a specified Data Encryption Key (DEK). This DEK is then used to encrypt sensitive data, thereby achieving data masking.</p> <p>DSC supports two encryption algorithms: AES256 and SM4.</p>	<ul style="list-style-type: none"><li>• Sensitive data:<ul style="list-style-type: none"><li>– Personal data</li><li>– Enterprise data</li></ul></li><li>• Application scenario: data storage</li></ul>

Data Masking Algorithms	Description	Application Scenarios
Character Masking	<p>Use the specified character * or random characters (including numbers, letters, and both number and letters) to cover part of the original content. The following six data masking approaches are supported:</p> <ul style="list-style-type: none"> <li>● Retain first <math>N</math> and last <math>M</math></li> <li>● Retain from <math>X</math> to <math>Y</math></li> <li>● Mask first <math>N</math> and last <math>M</math></li> <li>● Mask from <math>X</math> to <math>Y</math></li> <li>● Mask data ahead of special characters</li> <li>● Mask data followed by special characters</li> </ul> <p><b>NOTE</b> DSC has multiple character masking templates.</p>	<ul style="list-style-type: none"> <li>● Sensitive data: Personal data</li> <li>● Application scenarios: <ul style="list-style-type: none"> <li>- Data usage</li> <li>- Data sharing</li> </ul> </li> </ul>
Keyword Replacement	<p>Search for keywords in a specified column and replace them.</p> <p>For example, the specified characters are "Zhang San eats at home". After replacement, the characters become "Mr. Zhang eats at home". In the example, "Zhang San" is replaced with "Mr. Zhang".</p> <p>After this algorithm is executed, the value length may exceed the maximum length allowed by the database. In this case, the excess part will be truncated and inserted into the database.</p>	<ul style="list-style-type: none"> <li>● Sensitive data: <ul style="list-style-type: none"> <li>- Personal data</li> <li>- Enterprise data</li> <li>- Device data</li> </ul> </li> <li>● Application scenarios: <ul style="list-style-type: none"> <li>- Data storage</li> <li>- Data sharing</li> </ul> </li> </ul>

Data Masking Algorithms	Description	Application Scenarios
Value Change	<p>Set a specified field to <b>Null</b> or left it blank for data masking.</p> <ul style="list-style-type: none"><li>● Masking Using the Null Value Set a field of any type to <b>NULL</b>. If a field is set to <b>NOT NULL</b>, this algorithm changes the attribute of the file to <b>NULL</b> when copying the column.</li><li>● Masking Using a Custom Value Set the target field to a default value. Specifically, a character field is left blank, a numeric field is set to <b>0</b>, a date field is set to <b>1970</b>, and time field is set to <b>00:00</b>.</li></ul>	<ul style="list-style-type: none"><li>● Sensitive data:<ul style="list-style-type: none"><li>- Personal data</li><li>- Enterprise data</li><li>- Device data</li></ul></li><li>● Application scenarios:<ul style="list-style-type: none"><li>- Data storage</li><li>- Data sharing</li></ul></li></ul>





Data Masking Algorithms	Description	Application Scenarios
Roundup	<p>Round a date or number.</p> <ul style="list-style-type: none"><li>• <b>Date Roundup</b> Roundup of fields after the year field For example, <b>2019-05-12</b> will be converted to <b>2019-01-01</b>, and <b>2019-05-12 08:08:08</b> will be converted to <b>2019-01-01 00:00:00</b>.<p>Roundup of fields after the month field For example, <b>2019-05-12</b> will be converted to <b>2019-05-01</b>, and <b>2019-05-12 08:08:08</b> will be converted to <b>2019-05-01 00:00:00</b>.</p><p>Roundup of fields after the day field For example, <b>2019-05-12</b> will be converted to <b>2019-05-12</b>, and <b>2019-05-12 08:08:08</b> will be converted to <b>2019-05-12 00:00:00</b>.</p><p>Roundup of fields after the hour field For example, <b>08:08:08</b> will be converted to <b>08:00:00</b>, and <b>2019-05-12 08:08:08</b> will be converted to <b>2019-05-12 08:00:00</b>.</p><p>Roundup of fields after the minute field For example, <b>08:08:08</b> will be converted to <b>08:08:00</b>, and <b>2019-05-12 08:08:08</b> will be converted to <b>2019-05-12 08:08:00</b>.</p><p>Roundup of fields after the second field For example, <b>08:08:08.123</b> will be converted to <b>08:08:08.000</b>, and <b>1575612731312</b> will be converted to <b>1575612731000</b>.</p><li>• <b>Number roundup</b> Rounds a specified number.</li></li></ul>	<ul style="list-style-type: none"><li>• Sensitive data: General data</li><li>• Application scenarios:<ul style="list-style-type: none"><li>- Data storage</li><li>- Data usage</li></ul></li></ul>

## 6.1.2 Configuring a Data Masking Rule

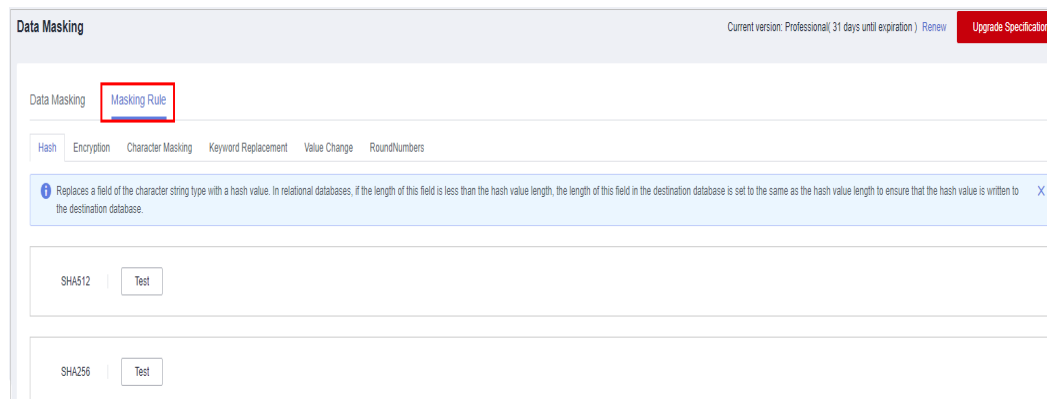
This section describes how to configure a data masking rule. For more information about masking algorithms, see [Overview](#).

### Procedure

**Step 1** Log in to the management console.

- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Data Asset Protection > Data Masking**. On the page displayed, click the **Masking Rule** tab.

**Figure 6-3** Accessing the Masking Rule tab



- Step 5** On the **Masking Rule** tab page, select a proper masking method and configure a masking rule.
- If you select **Hash**, configure a masking rule according to **Hash**.
  - If you select **Encryption**, configure a masking rule according to **Encryption**.
  - If you select **Character Masking**, configure a masking rule according to **Character Masking**.
  - If you select **Keyword Replacement**, configure a masking rule according to **Keyword Replacement**.
  - If you select **Value Change**, configure a masking rule according to **Value Change**.
  - If you select **Roundup**, configure a masking rule according to **Roundup**.

----End

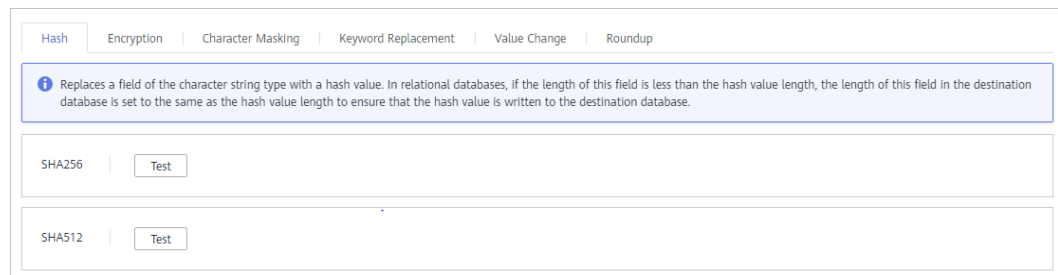
## Hash

This method is used to replace a field of the string type with a hash value. In a relational database, if the field length is less than the hash length, the length of the field in the destination database is set to be the same as the hash value length to ensure that the hash value is completely written to the destination database. By default, two hash algorithms, SHA-256 and SHA-512, are configured for DSC.

Hash algorithms are built-in and do not need to be configured. If you want to test the masking effect, perform the following steps:

- Step 1** Access the **Masking Rule** page by referring to **Procedure**.
- Step 2** Click the **Hash** tab.

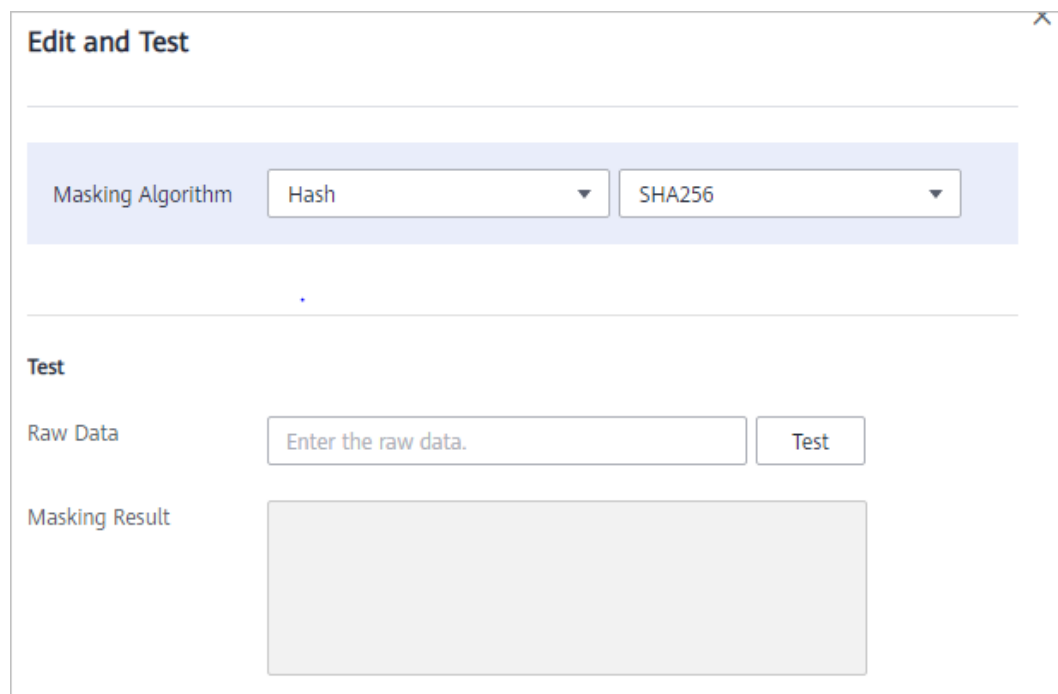
**Figure 6-4 Hash**



**Step 3** In the column where the SHA-256 or SHA-512 algorithm is, click **Test**.

**Step 4** On the page displayed, enter the raw data and click **Test**. The masking result will be displayed in the **Masking Result** text box.

**Figure 6-5 Hash method**



----End

## Encryption

This method masks data using encryption algorithms and a master key. In the encryption and data masking result, the first 16 bytes of an encrypted string is the initialization vector (IV), and the rest is the enciphered text.

**Step 1** Access the **Masking Rule** page by referring to [Procedure](#).

**Step 2** Click the **Encryption** tab.

- **Master Key Algorithm:** Select an encryption algorithm from the drop-down list box. Two encryption algorithms are available: **AES256** and **SM4**.
- For KMS encryption, the KMS key can be either selected from the drop-down list or entered:

- **Select from Keys:** Select an existing master key from the drop-down list. If no master key is available, click **Create KMS Key** to create one.

 **NOTE**


By default, the master key **csm/default** is used for encryption.

- **Enter a KMS key ID:** Enter the ID of the KMS key in the current region.

**Step 3** After the configuration is complete, click **Generate Encryption Configuration**.

If you want to delete a configured encryption configuration, click **Delete** in the **Operation** column.

 **NOTE**

Click  to enable the rotation policy. After rotation, the current encryption configuration is updated to improve security.

----End

## Character Masking

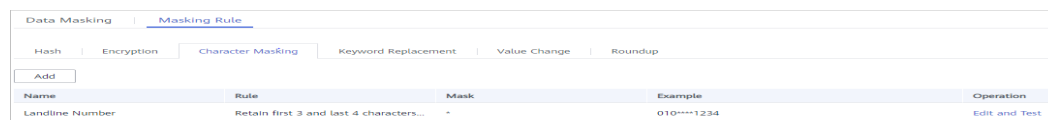
This method uses the specified character \* or a random character to cover part of the content.

There are six masking methods available, including retaining first *N* and last *M*, retaining from *X* to *Y*, masking first *N* and last *M*, masking from *X* to *Y*, masking data ahead of special characters, and masking data followed by special characters.

**Step 1** Access the **Masking Rule** page by referring to [Procedure](#).

**Step 2** Click the **Character Masking** tab.

**Figure 6-6** Character masking method



Data Masking   Masking Rule				
Hash   Encryption   <b>Character Masking</b>   Keyword Replacement   Value Change   Roundup				
<input type="button" value="Add"/>				
Name	Rule	Mask	Example	Operation
Landline Number	Retain first 3 and last 4 characters...	*	010****1234	<a href="#">Edit and Text</a>

**Step 3** Click **Add** to configure a character masking rule.

**Figure 6-7** Adding a character masking rule

**Add Character Masking Rule**

Name

Rule

Rule Variable N  M

Masking Method

Masked with

**Test**

Raw Data

Masking Result

**Step 4** Enter the raw data and click **Test**. The masking result will be displayed in the **Masking Result** text box.

**Step 5** Verify the testing result and click **Save**.

**NOTE**

- Multiple character masking rules have been preset in DSC. Built-in masking rules cannot be deleted. To delete a custom masking rule, click **Delete** in the **Operation** column of the target rule.
- All rules can be edited. To edit a rule, locate the row containing the rule and click **Edit** in the **Operation** column.

----End

## Keyword Replacement

This method masks data by replacing matched keywords with custom strings. For example, if the original characters are **abcdefgbcdefgkjkoij**, the keyword is **bcde**, and the replacement string is **12**, the masking result is **a12fg12fgkjkoij**.

**Step 1** Access the **Masking Rule** page by referring to [Procedure](#).

**Step 2** Click the **Keyword Replacement** tab.

**Figure 6-8** Keyword Replacement

Keyword	Replaced with	Operation
2	3	Edit and Test   Delete

**Step 3** Set the keyword and the replacement string.

Then, the keywords matched in raw characters will be replaced with the replacement string.

**Figure 6-9** Adding a keyword

**Step 4** Enter the raw data and click **Test**. The masking result will be displayed in the **Masking Result** text box.

**Step 5** Verify the testing result and click **Save**.

- To modify a configured masking rule, locate the row containing the rule and click **Edit and Test** in the **Operation** column.
- To delete a configured masking rule, locate the row containing the rule and click **Delete** in the **Operation** column.

----End

## Value Change

The following algorithms have been built in:

- **Masking Using the Null Value:** Set fields of any type to **NULL**. For a field whose attribute is set to **NOT NULL**, the algorithm changes the attribute to **NULL** during copy.

- **Masking Using the Empty Value:** Set the specified field to an empty value. Specifically, a character field is left blank, a numeric field is set to **0**, a date field is set to **1970**, and time field is set to **00:00**.

It is a built-in masking rule of DSC and does not need to be configured. To view the masking rule, perform the following steps:

**Step 1** Access the **Masking Rule** page by referring to [Procedure](#).

**Step 2** Click the **Value Change** tab.

**Figure 6-10** Value Change

Hash	Encryption	Character Masking	Keyword Replacement	Value Change	Roundup
Masking Using the Null Value   Sets the target field to Null.					
Masking Using a Custom Value   Sets the target field to a default value.					
Numeral Type   1024 -> 0, 0.123 -> 0.0, 0xef -> 0x00					
Character String Type   text -> "					
Date/Time Types in the Database   Character String Type					
Timestamp Type in the Database   "1575604312"->"0"					

----End

## Roundup

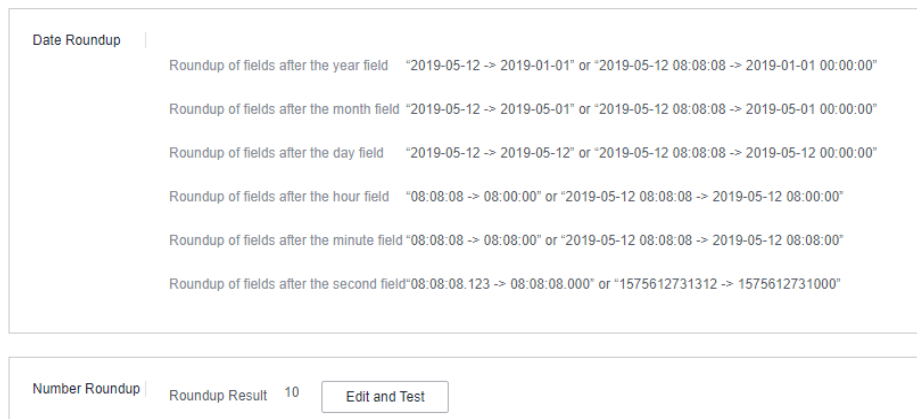
**Step 1** Access the **Masking Rule** page by referring to [Procedure](#).

**Step 2** Click **Round**.

There are two built-in data masking algorithms available:

- **Date Roundup:** Used for time-related fields such as **timestamp**, **time**, **data**, and **datetime** in RDS.
- **Number Roundup:** Used for value types fields such as **double**, **float**, **int**, and **long**. After data masking, the original field type does not change.

Figure 6-11 Value masking page

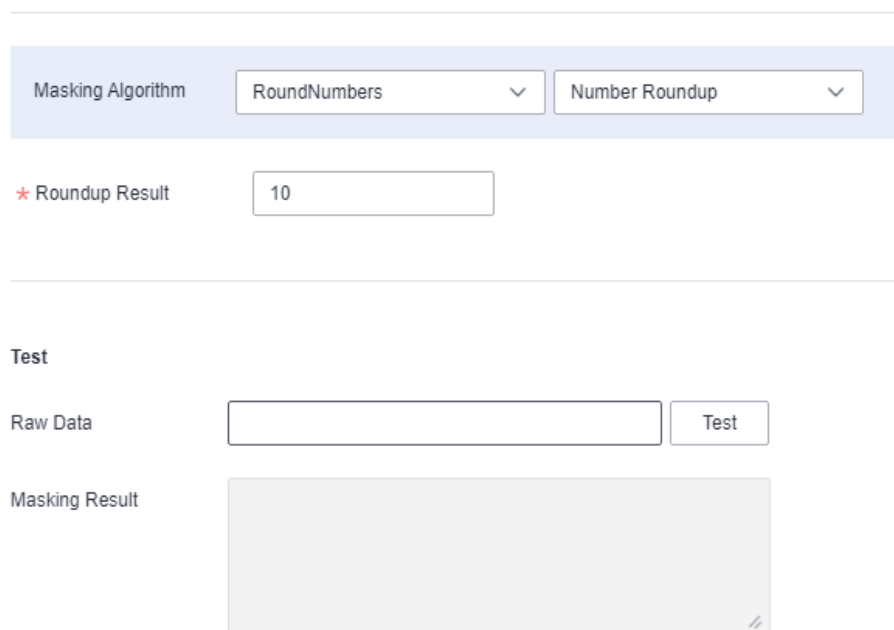


**Step 3** Click **Edit Test** and set **Rounding Value**.

**Masking Result:** Rounds a given value downwards to a multiple value closest to the raw data. For example, if the given value is **5** and the raw data is **14**, the multiple of **5** that is closest to **14** is **10**. That is, the masking result is **10**.

Figure 6-12 Number roundup

### Edit and Test



**Step 4** Enter the raw data and click **Test**. The masking result will be displayed in the **Masking Result** text box.

**Step 5** Verify the testing result and click **Save**.

----End



## 6.1.3 Static Data Masking

### 6.1.3.1 Creating a Database Data Masking Task

Creating a database masking task to mask sensitive information in a specified database. This section describes how to create a database masking task.

#### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Specific assets have been added or authorized. For details, see [Asset Center](#).
- Sensitive data has been identified by referring to [Creating an Identification Task](#).


#### Constraints

The following data sources are supported: **SQLServer, MySQL, TDSQL, PostgreSQL, Dameng, Kingbase, OpenGauss, Oracle, and DWS.**


### Creating and Running a Database Masking Task

**Step 1** Log in to the management console.

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

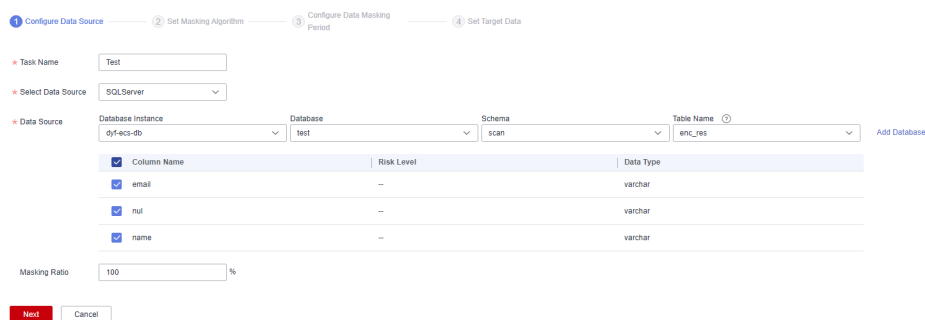
**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the left navigation pane, choose **Data Asset Protection > Static Data Masking**.

**Step 5** On the **Database Masking** tab page, click  to enable database data masking.

**Step 6** Click **Create Task**. On the displayed **Configure Data Source** page, configure parameters according to [Table 6-2](#).

**Figure 6-13** Configuring a database data masking task



Column Name	Risk Level	Data Type
email	--	varchar
null	--	varchar
name	--	varchar

**Table 6-2** Parameter description

Parameter	Description
Task Name	You can customize the name of a data masking task. The task name must meet the following requirements: <ul style="list-style-type: none"><li>Contain 1 to 255 characters.</li><li>Consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
Select Data Source	Select a data source. Available options are <b>SQLServer, MySQL, TDSQL, PostgreSQL, Dameng, Kingbase, OpenGauss, Oracle, and DWS.</b>
Data Source	Database instance: Select the database instance where the data you want to mask is located.
<b>NOTE</b> If no database instance is available, click <b>Add Database</b> . For details, see <a href="#">Authorizing Access to Database Assets</a> .	<b>Database:</b> Select the name of the database where the data you want to mask is located.
	<b>Schema:</b> This parameter is available only when <b>SQLServer, KingBase, OpenGauss, PostgreSQL, or DWS</b> is selected for <b>Data Source</b> .
	Table name: Select the name of the database table where the data you want to mask is located.
Masking Ratio	Specify the database's masking ratio. For instance, setting it to 80% will mask the initial 800 rows in a database with 1000 rows.

**Step 7** Click **Next**. The **Set Masking Algorithm** page is displayed.

1. Select the data columns you want to mask.
2. Select a data masking algorithm. For details about data masking algorithms, see [Configuring a Data Masking Rule](#).
3. Click **Edit**. On the editing test page displayed, test the masking algorithm you selected. Enter the replacement string and raw data, click **Test**, and view the masking result. For details about masking rules, see [Configuring a Data Masking Rule](#).

**Step 8** Click **Next**. On the **Configure Data Masking Period** page that is displayed, configure the masking period.

Click  next to **Incremental Masking** to enable incremental masking.

**Incremental Key Value:** Select an incremental key value from the drop-down list box, for example, **id**.

 **NOTE**

- After incremental masking is enabled, the data added after the last masking task is completed is masked. Select a field that increases with time in the source data as the incremental column, such as the creation time and auto-increment ID.
- Currently, incremental masking supports the following database field types: **int**, **bigint**, **integer**, **date**, and **datetime**.

Select and set the execution period of a masking task.

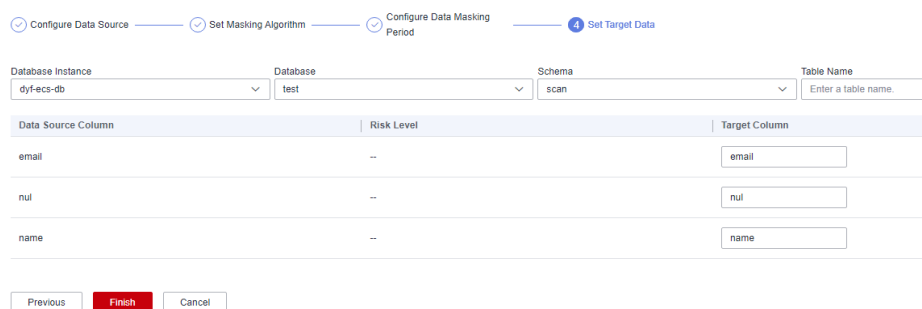
- **Manual:** Manually enable a masking task and execute it based on masking rules.
- **Hourly:** Execute a data masking task every several hours.  
Example: If the masking task needs to be executed every two hours, set this parameter to **02:00**.
- **Daily:** Execute a data masking task at a specified time every day.  
Example: If the masking task needs to be executed at 12:00 every day, set this parameter to **12:00:00**.
- **Weekly:** Execute a data masking task at a specified time every week.  
Example: If the masking task needs to be executed at 12:00 every Monday, set this parameter to 12:00:00 every Monday.
- **Monthly:** Execute a data masking task at a specified time on a specified day every month.  
Example: If the masking task needs to be executed at 12:00 on the 12th day of each month, set this parameter to 12:00:00 12th day of every month.

 **NOTE**

If you want to execute a data masking task on the 31st day of each month, the system automatically executes the task on the last day of every month.

**Step 9** Click **Next**. The **Set Target Data** page is displayed.

**Figure 6-14** Configuring a target data type



Configure Data Source — Set Masking Algorithm — Configure Data Masking Period — **Set Target Data**

Database Instance: dy-fecs-db Database: test Schema: scan Table Name: Enter a table name

Data Source Column	Risk Level	Target Column
email	--	email
nui	--	nui
name	--	name

Previous **Finish** Cancel

1. Select a database instance and database name, and enter the database table name.

If the entered data table name already exists, the system updates the data table in the target database.

If the entered data table name does not exist, the system automatically creates a data table with the same name in the target database.

**CAUTION**

- Do not fill in an existing service data table. Otherwise, services may be affected.
- Do not select an original data table as the target data table. Otherwise, the original data may be overwritten.

2. Set the column name of the target data type.  
By default, the system generates a name that is the same as the name of the data source column. You can retain the default name or change it as required.

**Step 10** Click **Finish**.

**Step 11** Click the **Database** tab. Locate the row containing the target data masking task and click **Execute** in the **Operation** column.

**Figure 6-15** Executing a database data masking task

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
▼	test-mysql-1000W	test-tuomin → test-tuomin	On demand	<b>Execute</b> Edit Delete

**Step 12** The data masking task is executed as configured.

----End

## Viewing the Status of a Database Data Masking Task

- On the **Database** tab page, click of the target data masking task to view its execution status.

The statuses are as follows:

- **Completed:** The data masking task has been successfully executed.
- **Running:** The data masking task is being executed.
- **Pending execution:** The data masking task is not executed.
- **Stopped:** The data masking task has been manually stopped.
- **Failed:** The data masking task fails to be executed.

**Figure 6-16** Data masking task statuses

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
^	test-mysql-1000W	test-tuomin → test-tuomin	On demand	Execute Edit Delete
Start Time	End Time	Execution Method	Executed Lines	Status
2023/07/05 18:51:11 GMT+08:00	2023/07/05 19:23:18 GMT+08:00	On demand	1000000	Completed

## Editing and Deleting a Database Data Masking Task

A masking task in the **Waiting** or **Running** status cannot be edited or deleted.

- In the database data masking task list, locate the row containing the target data masking task and click **Edit** in the **Operation** column to reconfigure masking task information. For details, see [Creating and Running a Database Masking Task](#).

**Figure 6-17** Editing a database data masking task

	Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
▼		encrypt_test	student → student	On demand	Execute Edit <b>Delete</b>
▼		mask-test	student → student	On demand	Execute Edit Delete

- In the database data masking task list, locate the row containing the target data masking task and click **Delete** in the **Operation** column.

**Figure 6-18** Deleting a database data masking task

	Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
▼		test-mysql-1000V	test-uumin → test-uumin	On demand	Execute Edit <b>Delete</b>
▼		test-mysql-100W	test-uumin → test-uumin	On demand	Execute Edit Delete



Deleted masking tasks cannot be restored. Exercise caution when performing this operation.

### 6.1.3.2 Creating an Elasticsearch Data Masking Task

Create an Elasticsearch data masking task to mask sensitive information in tables or columns in a specified Elasticsearch data source.

This section describes how to create an Elasticsearch data masking task.

#### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Access to Elasticsearch indexes has been authorized. For details, see [Authorizing Access to Big Data Assets](#).
- Sensitive data has been identified by referring to [Creating an Identification Task](#).

#### Constraints

Currently, only **Elasticsearch** is supported.

### Creating and Running an Elasticsearch Data Masking Task

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the left navigation pane, choose **Data Asset Protection > Data Masking** and click the **Elasticsearch** tab. The Elasticsearch masking page is displayed.

**Step 5** Click  and set **Elasticsearch** to  to enable Elasticsearch masking.

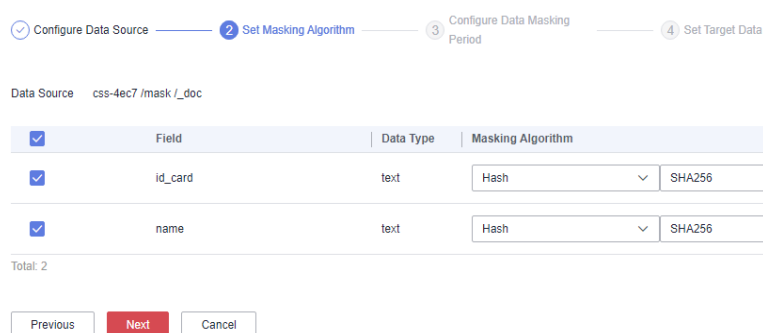
**Step 6** Click **Create Task**. On the displayed **Configure Data Source** page, configure parameters according to [Table 6-3](#).

**Table 6-3** Parameter description

Parameter	Description
Task Name	You can customize the name of a data masking task. The task name must meet the following requirements: <ul style="list-style-type: none"> <li>Contain 1 to 255 characters.</li> <li>Consist of letters, digits, underscores (_), and hyphens (-).</li> </ul>
Select Data Source	Select a data source. Currently, the value can only be <b>Elasticsearch</b> .
Data Source	<b>Elasticsearch:</b> Select the Elasticsearch instance where the data to be masked is.
<b>NOTE</b> If no Elasticsearch instance is available, click <b>Add</b> to add Elasticsearch indexes. For details, see <a href="#">Authorizing Access to Big Data Assets</a> .	<b>Index:</b> Select the index where the data to be masked is.
	<b>Type:</b> Select the type of the data to be masked.

**Step 7** Click **Next**.

**Figure 6-19** Configuring a masking algorithm



1. Select the data columns you want to mask.
2. Select a data masking algorithm. For details about data masking algorithms, see [Configuring a Data Masking Rule](#).

**Step 8** Click **Next** to switch to the **Configure Data Masking Period** page and configure the data masking period.

Select and set the execution period of a masking task.

- **Manual:** Manually enable a masking task and execute it based on masking rules.
- **Hourly:** Execute a data masking task every several hours.  
Example: If the masking task needs to be executed every two hours, set this parameter to **02:00**.
- **Daily:** Execute a data masking task at a specified time every day.  
Example: If the masking task needs to be executed at 12:00 every day, set this parameter to **12:00:00**.
- **Weekly:** Execute a data masking task at a specified time every week.  
Example: If the masking task needs to be executed at 12:00 every Monday, set this parameter to 12:00:00 every Monday.
- **Monthly:** Execute a data masking task at a specified time on a specified day every month.  
Example: If the masking task needs to be executed at 12:00 on the 12th day of each month, set this parameter to 12:00:00 12th day of every month.

 **NOTE**

If you want to execute a data masking task on the 31st day of each month, the system automatically executes the task on the last day of every month.

**Step 9** Click **Next**.

**Figure 6-20** Setting target data

Progress: 1. Configure Data Source, 2. Set Masking Algorithm, 3. Configure Data Masking Period, 4. **Set Target Data**

Elasticsearch Instance	Index	Type
css-4ec7	mask	._doc

Data Source Column	Risk Level	Target Column
id_card	0	<input type="text" value="id_card"/>
name	0	<input type="text" value="name"/>

1. Select an Elasticsearch instance and index, and set **Type**.

If the type you entered already exists, the system updates the data of the type in the target data source.

If the type you entered does not exist, the system automatically creates a type with the same name in the target data source.

 **CAUTION**

If you want to use an existing type, do not set **Type**. Otherwise, services may be affected.

2. Set the column name of the target data type.

By default, the system generates the same name as the data source column. You can retain the default name or change it as needed.

**Step 10** Click **Finish**.

**Step 11** Click the **Elasticsearch** tab. Locate the row containing the target data masking task and click **Execute** in the **Operation** column.


**Figure 6-21** Executing an Elasticsearch data masking task

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input checked="" type="checkbox"/>	test-mysql-1000W	test-luomin → test-luomin	On demand	<b>Execute</b> Edit Delete

**Step 12** The data masking task is executed as configured.


**NOTE**



If  is displayed in the **Enable/Disable** column, the task is disabled, and you are not allowed to click **Execute**.

----End

## Viewing the Status of an Elasticsearch Data Masking Task

- On the **Elasticsearch** tab page, click  of the target data masking task to view its execution status.

The statuses are as follows:

- Completed:** The data masking task has been successfully executed.
- Running:** The data masking task is being executed.
- Pending execution:** The data masking task is not executed.
- Stopped:** The data masking task has been manually stopped.
- Failed:** The data masking task fails to be executed.

**Figure 6-22** Data masking task statuses

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input checked="" type="checkbox"/>	test-hive-1000W	default → default	On demand	<b>Execute</b> Edit Delete

Start Time ↓	End Time	Execution Method	Status
2023/07/06 09:51:46 GMT-08:00	1970/01/01 08:00:00 GMT-08:00	On demand	0% Running Stop Masking
2023/07/04 11:35:17 GMT-08:00	2023/07/04 11:37:41 GMT-08:00	On demand	Failed

## Editing and Deleting an Elasticsearch Data Masking Task

A masking task in the **Waiting** or **Running** status cannot be edited or deleted.

- In the Elasticsearch data masking task list, locate the row containing the target data masking task and click **Edit** in the **Operation** column to modify masking task information. For details, see [Creating and Running an Elasticsearch Data Masking Task](#).



**Figure 6-23** Editing an Elasticsearch data masking task

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input checked="" type="checkbox"/>	whfghghj	test → test	01:00 every hour	Execute <b>Edit</b> Delete

- In the Elasticsearch data masking task list, locate the row containing the target data masking task and click **Delete** in the **Operation** column.

**Figure 6-24** Deleting an Elasticsearch data masking task

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input type="checkbox"/>	test	person_info2 → disc_index_test	On demand	Execute <b>Edit</b> <b>Delete</b>

**CAUTION**

Deleted masking tasks cannot be restored. Exercise caution when performing this operation.

### 6.1.3.3 Creating an MRS Data Masking Task

Create an MRS data masking task to mask sensitive information of specified data. This section describes how to create an MRS data masking task.

#### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Access to Hive databases has been authorized. For details, see [Authorizing Access to Big Data Assets](#).
- Permissions on MRS Hive have been configured by referring to [Modifying Hive User Rights](#).
- Sensitive data has been identified by referring to [Creating an Identification Task](#).


#### Constraints

Currently, only **MRS\_HIVE** is supported.

### Creating and Running an MRS Data Masking Task

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the left navigation pane, choose **Data asset protection > Data Masking** and click the **MRS** tab. The MRS masking page is displayed.

**Step 5** Click  and set **Mask Sensitive MRS Data** to  to enable MRS masking.

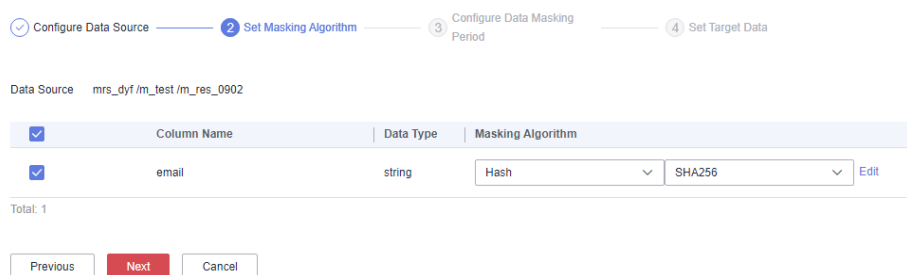
**Step 6** Click **Create Task**. On the displayed **Configure Data Source** page, configure parameters according to [Table 6-4](#).

**Table 6-4** Parameter description

Parameter	Description
Task Name	You can customize the name of a data masking task. The task name must meet the following requirements: <ul style="list-style-type: none"> <li>Contain 1 to 255 characters.</li> <li>Consist of letters, digits, underscores (_), and hyphens (-).</li> </ul>
Select Data Source	Select a data source. Only <b>MRS_HIVE</b> is available.
Data Source	Database instance: Select the database instance where the data you want to mask is located.
<b>NOTE</b> If no Hive database is available, click <b>Add Database</b> to add database assets. For details, see <a href="#">Authorizing Access to Big Data Assets</a> .	<b>Database:</b> Select the name of the database where the data you want to mask is located.
	<b>Table name:</b> Select the name of the database table where the data you want to mask is located.
	Select a column name and copy the data in the column to the target database.

**Step 7** Click **Next**.

**Figure 6-25** Setting a masking algorithm



- Select the data columns you want to mask.
- Select a data masking algorithm. For details about data masking algorithms, see [Configuring a Data Masking Rule](#).

**Step 8** Click **Next** to switch to the **Configure Data Masking Period** page and configure the data masking period.

Select and set the execution period of a masking task.

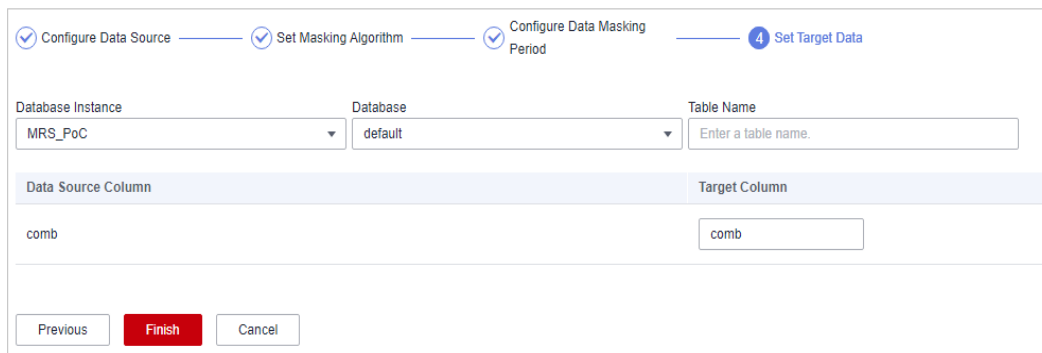
- **Manual:** Manually enable a masking task and execute it based on masking rules.
- **Hourly:** Execute a data masking task every several hours.  
Example: If the masking task needs to be executed every two hours, set this parameter to **02:00**.
- **Daily:** Execute a data masking task at a specified time every day.  
Example: If the masking task needs to be executed at 12:00 every day, set this parameter to **12:00:00**.
- **Weekly:** Execute a data masking task at a specified time every week.  
Example: If the masking task needs to be executed at 12:00 every Monday, set this parameter to 12:00:00 every Monday.
- **Monthly:** Execute a data masking task at a specified time on a specified day every month.  
Example: If the masking task needs to be executed at 12:00 on the 12th day of each month, set this parameter to 12:00:00 12th day of every month.

 **NOTE**

If you want to execute a data masking task on the 31st day of each month, the system automatically executes the task on the last day of every month.

**Step 9** Click **Next**.

**Figure 6-26** Setting target data



Progress	
✓ Configure Data Source	✓ Set Masking Algorithm
✓ Configure Data Masking Period	4 Set Target Data

Database Instance	Database	Table Name
MRS_PoC	default	Enter a table name.

Data Source Column	Target Column
comb	comb

Previous **Finish** Cancel

1. Select a database instance and database name, and enter the database table name.  
If the entered data table name already exists, the system updates the data table in the target database.  
If the entered data table name does not exist, the system automatically creates a data table with the same name in the target database.

 **CAUTION**

Do not fill in an existing service data table. Otherwise, services may be affected.

2. Set the column name of the target data type.

By default, the system generates a name that is the same as the name of the data source column. You can retain the default name or change it as required.


**Step 10** Click **Finish**.

**Step 11** Click the **MRS** tab. Locate the row containing the target data masking task and click **Execute** in the **Operation** column.

**Step 12** The data masking task is executed as configured.

----End






## Viewing the Status of an MRS Data Masking Task

- On the **MRS** tab page, click  of the target data masking task to view its execution status.

The statuses are as follows:

- Completed:** The data masking task has been successfully executed.
- Running:** The data masking task is being executed.
- Pending execution:** The data masking task is not executed.
- Stopped:** The data masking task has been manually stopped.
- Failed:** The data masking task fails to be executed.

**Figure 6-27** MRS data masking task statuses

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
	test-mrs	lby → rby	On demand	Execute Edit Delete
Start Time	End Time	Execution Method	Status	
2023/07/04 11:30:22 GMT+08:00	2023/07/04 11:36:10 GMT+08:00	On demand	 Completed	
2023/06/28 12:37:39 GMT+08:00	2023/06/28 12:41:22 GMT+08:00	On demand	 Completed	
2023/06/28 11:42:40 GMT+08:00	--	On demand	 Stopped	
2023/06/28 11:14:34 GMT+08:00	--	On demand	 Stopped	

## Editing and Deleting an MRS Data Masking Task

A masking task in the **Waiting** or **Running** status cannot be edited or deleted.

- In the MRS data masking task list, locate the row containing the target data masking task and click **Edit** in the **Operation** column to modify masking task information. For details, see [Creating and Running an MRS Data Masking Task](#).
- In the MRS data masking task list, locate the row containing the target data masking task and click **Delete** in the **Operation** column.



Deleted masking tasks cannot be restored. Exercise caution when performing this operation.

### 6.1.3.4 Creating a Hive Masking Task

You can mask sensitive Hive data.

This section describes how to create a data masking task for Hive.





## Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- Access to Hive databases has been authorized. For details, see [Authorizing Access to Big Data Assets](#).
- Sensitive data has been identified by referring to [Creating an Identification Task](#).

## Constraints

Currently, only **HIVE** is supported.

## Creating and Running a Hive Masking Task

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the left navigation pane, choose **Data Asset Protection > Data Masking** and click the **Hive** tab. The Hive masking page is displayed.
- Step 5** Click  and set **Mask Sensitive Hive Data** to  to enable Hive masking.
- Step 6** Click **Create Task**. On the displayed **Configure Data Source** page, configure parameters according to [Table 6-5](#).

**Table 6-5** Parameter description

Parameter	Description
Task Name	You can customize the name of a data masking task. The task name must meet the following requirements: <ul style="list-style-type: none"><li>• Contain 1 to 255 characters.</li><li>• Consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
Select Data Source	Select a data source. Only <b>Hive</b> is supported.
Data Source	Database instance: Select the database instance where the data you want to mask is located.
<b>NOTE</b> If no Hive database is available, click <b>Add Database</b> to add database assets. For details, see <a href="#">Authorizing Access to Big Data Assets</a> .	<b>Database:</b> Select the name of the database where the data you want to mask is located.

Parameter	Description
	Table name: Select the name of the database table where the data you want to mask is located. If you select the check box, data in this column is copied to the <b>Data Type</b> column.

**Step 7** Click **Next**.

**Figure 6-28** Setting a masking algorithm

Column Name	Data Type	Security L...	Masking Algorithm	
<input checked="" type="checkbox"/> id2	int	<input type="checkbox"/>	RoundNumbers	<input type="text"/> Edit
<input checked="" type="checkbox"/> name	string	<input type="checkbox"/>	Hash	SHA256 Edit

Total: 2

Previous Next Cancel

1. Select the data columns you want to mask.
2. Select a data masking algorithm. For details about data masking algorithms, see [Configuring a Data Masking Rule](#).

**Step 8** Click **Next** to switch to the **Configure Data Masking Period** page and configure the data masking period.

Select and set the execution period of a masking task.

- **Manual:** Manually enable a masking task and execute it based on masking rules.
- **Hourly:** Execute a data masking task every several hours.  
Example: If the masking task needs to be executed every two hours, set this parameter to **02:00**.
- **Daily:** Execute a data masking task at a specified time every day.  
Example: If the masking task needs to be executed at 12:00 every day, set this parameter to **12:00:00**.
- **Weekly:** Execute a data masking task at a specified time every week.  
Example: If the masking task needs to be executed at 12:00 every Monday, set this parameter to 12:00:00 every Monday.
- **Monthly:** Execute a data masking task at a specified time on a specified day every month.  
Example: If the masking task needs to be executed at 12:00 on the 12th day of each month, set this parameter to 12:00:00 12th day of every month.

**NOTE**

If you want to execute a data masking task on the 31st day of each month, the system automatically executes the task on the last day of every month.

**Step 9** Click **Next**.**Figure 6-29** Setting target data

Data Source Column	Target Column
id1	id1
id2	id2

1. Select a database instance and database name, and enter the database table name.

If the entered data table name already exists, the system updates the data table in the target database.

If the entered data table name does not exist, the system automatically creates a data table with the same name in the target database.

**CAUTION**

Do not fill in an existing service data table. Otherwise, services may be affected.

2. Set the column name of the target data type.  
By default, the system generates a name that is the same as the name of the data source column. You can retain the default name or change it as required.

**Step 10** Click **Finish**.

**Step 11** On the **Hive** page. In the **Operation** column of the target anonymization task, click **Execute**.

**Step 12** The data masking task is executed as configured.

----End

## Checking the Running Status of a Hive Data Masking Task

- On the **Hive** tab page, view the task running status, as shown in [Running status of the Hive data masking task](#).

The task statuses are described as follows:

- **Completed:** The data masking task has been successfully executed.
- **Running:** The data masking task is being executed.
- **Pending execution:** The data masking task is not executed.
- **Stopped:** The data masking task has been manually stopped.
- **Failed:** The data masking task fails to be executed.

Figure 6-30 Running status of the Hive data masking task

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input checked="" type="checkbox"/>	test-hive-1000W	default → default	On demand	Execute Edit Delete
Start Time	End Time	Execution Method	Status	
2023/07/04 09:51:49 GMT+08:00	1970/01/01 08:00:00 GMT+08:00	On demand	0% Running Stop Masking	
2023/07/04 11:35:17 GMT+08:00	2023/07/04 11:37:41 GMT+08:00	On demand	Failed	

## Editing and Deleting a Hive Data Masking Task

A masking task in the **Waiting** or **Running** status cannot be edited or deleted.

- In the **Hive** data masking task list, click **Edit** in the **Operation** column. For details about how to configure masking task information, see [Creating and Running a Hive Masking Task](#).

Figure 6-31 Editing a Hive data masking task

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input checked="" type="checkbox"/>	hive-0530	hive_range1 → hive_range1	On demand	Execute <b>Edit</b> Delete

- In the **Hive** data masking task list, click **Delete** in the **Operation** column.

Figure 6-32 Deleting a Hive data masking task

Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input checked="" type="checkbox"/>	www	zyl_test → zyl_test	On demand	Execute Edit <b>Delete</b>



Deleted masking tasks cannot be restored. Exercise caution when performing this operation.

### 6.1.3.5 Creating an HBase Masking Task

Create a data masking task for a data set to mask sensitive information.

This section describes how to create a data masking task for HBase.

#### Prerequisites





- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- The HBase namespace has been authorized. For details, see [Authorizing Access to Big Data Assets](#).
- Sensitive data has been identified by referring to [Creating an Identification Task](#).

#### Constraints

Currently, only **HBase** is supported.



## Creating and Running an HBase Masking Task

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Data Asset Protection > Data Masking** and click the **HBase** tab. The **HBase Masking** page is displayed.
- Step 5** Click  and set **Mask Sensitive HBase Data** to  to enable HBase masking.
- Step 6** Click **Create Task**. On the displayed **Configure Data Source** page, configure parameters according to [Table 6-6](#).

**Table 6-6** Parameter description

Parameter	Description
Task Name	You can customize the name of a data masking task. The task name must meet the following requirements: <ul style="list-style-type: none"><li>• Contain 1 to 255 characters.</li><li>• Consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
Select Data Source	Select a data source. Only <b>HBase</b> is supported.
Data Source	Database instance: Select the database instance where the data you want to mask is located.
<b>NOTE</b> If no database instance is available, click <b>Add Database</b> to add database assets. For details, see <a href="#">Authorizing Access to Big Data Assets</a> .	Namespace: Select the namespace where the data to be masked is located.
	Table name: Select the name of the database table where the data you want to mask is located.
	Column family: Select the column where the data to be masked is located.
	If you select the check box, data in this column is copied to the <b>Data Type</b> column.

- Step 7** Click **Next**.

**Figure 6-33** Setting a masking algorithm

Configure Data Source — 2 Set Masking Algorithm — 3 Configure Data Masking Period — 4 Set Target Data

Data Source  
055ae123-8e2c-4d86-8088-db0039c2976c\_node\_master1dZyv /zjy /student /basic\_info

<input checked="" type="checkbox"/>	Column Name	Data Type	Masking Algorithm		
<input checked="" type="checkbox"/>	email	string	Hash	SHA256	Edit
<input checked="" type="checkbox"/>	age	string	Hash	SHA256	Edit

Total: 2

1. Select the data columns you want to mask.
2. Select a data masking algorithm. For details about data masking algorithms, see [Configuring a Data Masking Rule](#).

**Step 8** Click **Next**. On the **Configure Data Masking Period** page that is displayed, configure the masking period.

Select and set the execution period of a masking task.

- **Manual**: Manually enable a masking task and execute it based on masking rules.
- **Hourly**: Execute a data masking task every several hours.  
Example: If the masking task needs to be executed every two hours, set this parameter to **02:00**.
- **Daily**: Execute a data masking task at a specified time every day.  
Example: If the masking task needs to be executed at 12:00 every day, set this parameter to **12:00:00**.
- **Weekly**: Execute a data masking task at a specified time every week.  
Example: If the masking task needs to be executed at 12:00 every Monday, set this parameter to 12:00:00 every Monday.
- **Monthly**: Execute a data masking task at a specified time on a specified day every month.  
Example: If the masking task needs to be executed at 12:00 on the 12th day of each month, set this parameter to 12:00:00 12th day of every month.

 **NOTE**

If you want to execute a data masking task on the 31st day of each month, the system automatically executes the task on the last day of every month.

**Step 9** Click **Next**.

**Figure 6-34** Setting target data

Data Source Column	Risk Level	Target Column
email	--	email
age	--	age

1. Select the database instance, namespace, and data table name, and enter the column family.

If the entered column name already exists, the system updates the data in the column.

If the entered column name does not exist, the system automatically creates the column in the target data table.

---

**CAUTION**

Do not fill in an existing service data table. Otherwise, services may be affected.

---

2. Set the column name of the target data type.  
By default, the system generates a name that is the same as the name of the data source column. You can retain the default name or change it as required.

**Step 10** Click **Finish**.

**Step 11** On the **HBase** page. In the **Operation** column of the target anonymization task, click **Execute**.

**Step 12** The data masking task is executed as configured.

----End

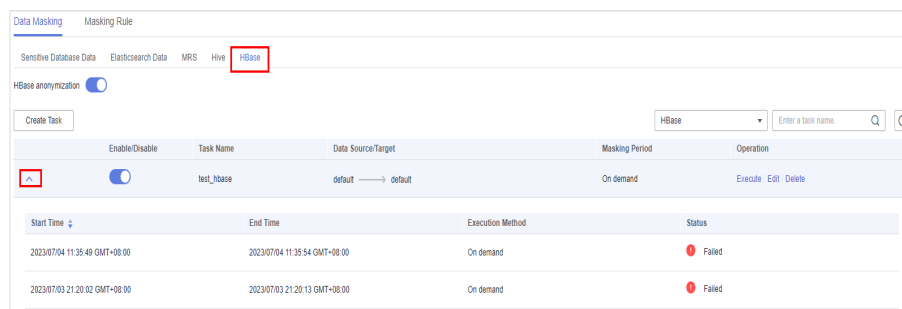
## Checking the Running Status of an HBase Data Masking Task

- On the **HBase** page, click  to view the masking task status, as shown in [Figure 6-35](#).

The task statuses are described as follows:

- **Completed:** The data masking task has been successfully executed.
- **Running:** The data masking task is being executed.
- **Pending execution:** The data masking task is not executed.
- **Stopped:** The data masking task has been manually stopped.
- **Failed:** The data masking task fails to be executed.

Figure 6-35 HBase masking task running status



Enable/Disable	Task Name	Data Source/Target	Masking Period	Operation
<input checked="" type="checkbox"/>	test_hbase	default → default	On demand	Execute Edit Delete

Start Time	End Time	Execution Method	Status
2023/07/04 11:35:49 GMT+08:00	2023/07/04 11:35:54 GMT+08:00	On demand	Failed
2023/07/03 21:20:02 GMT+08:00	2023/07/03 21:20:13 GMT+08:00	On demand	Failed

## Editing and Deleting an HBase Data Masking Task

A masking task in the **Waiting** or **Running** status cannot be edited or deleted.

- In the **HBase** data masking task list, click **Edit** in the **Operation** column. For details about how to configure masking task information, see [Creating and Running an HBase Masking Task](#).
- In the **HBase** data masking task list, click **Delete** in the **Operation** column.

---

### CAUTION

Deleted masking tasks cannot be restored. Exercise caution when performing this operation.

---

### 6.1.3.6 Creating a DLI Masking Task

You can mask sensitive DLI data.

This section describes how to create a data masking task for DLI.

#### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- A DLI database has been added. For details, see [Authorizing Access to Big Data Assets](#).
- Sensitive data has been identified by referring to [Creating an Identification Task](#).




#### Constraints

Currently, only the **DLI** data source is supported.

## Creating and Running an HBase Masking Task

**Step 1** Log in to the management console.

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

- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Data Asset Protection > Data Masking** and click the **DLI** tab. The **DLI Masking** page is displayed.
- Step 5** Click  and set **DLI Masking** to  to enable DLI masking.
- Step 6** Click **Create Task**. On the displayed **Configure Data Source** page, configure parameters according to [Table 6-7](#).

**Table 6-7** Parameter description

Parameter	Description
Task Name	You can customize the name of a data masking task. The task name must meet the following requirements: <ul style="list-style-type: none"><li>Contain 1 to 255 characters.</li><li>Consist of letters, digits, underscores (_), and hyphens (-).</li></ul>
Select Data Source	Select a data source. Only <b>DLI</b> is supported.
Data Source (If no database instance is available, click <b>Add Database</b> to add a database. For details, see <a href="#">Authorizing Access to Big Data Assets</a> .)	<b>Database Instance:</b> Select the database instance for masking. <b>Database Name:</b> Enter the name of the database for masking. <b>Data Table Name:</b> Enter the name of the table for masking. <b>NOTE</b> Only assets with read and write permissions can use the masking function.
	Select the columns to be masked. You can select multiple columns.
AK/SK	Enter an access key. For details, see . You can obtain the AK from the access key list and SK from the downloaded CSV file.

- Step 7** Click **Next**. The **Set Masking Algorithm** page is displayed, as shown in [Figure 6-36](#).

**Figure 6-36** Setting a masking algorithm - DLI masking task

Configure Data Source — 2 Set Masking Algorithm — 3 Configure Data Masking Period — 4 Set Target Data

Data Source  
DLI\_dyf\_queue\_dyf\_test/dyf\_test/mask\_res

<input checked="" type="checkbox"/>	Column Name	Data Type	Masking Algorithm
<input checked="" type="checkbox"/>	id_card	string	Hash SHA256 <a href="#">Edit</a>
<input checked="" type="checkbox"/>	name	string	Hash SHA256 <a href="#">Edit</a>

Total: 2

1. Select the data columns you want to mask.
2. Select a data masking algorithm. For details about data masking algorithms, see [Configuring a Data Masking Rule](#).

**Step 8** Click **Next** to switch to the **Configure Data Masking Period** page and configure the data masking period.

Select and set the execution period of a masking task.

- **Manual:** Manually enable a masking task and execute it based on masking rules.
- **Hourly:** Execute a data masking task every several hours.  
Example: If the masking task needs to be executed every two hours, set this parameter to **02:00**.
- **Daily:** Execute a data masking task at a specified time every day.  
Example: If the masking task needs to be executed at 12:00 every day, set this parameter to **12:00:00**.
- **Weekly:** Execute a data masking task at a specified time every week.  
Example: If the masking task needs to be executed at 12:00 every Monday, set this parameter to 12:00:00 every Monday.
- **Monthly:** Execute a data masking task at a specified time on a specified day every month.  
Example: If the masking task needs to be executed at 12:00 on the 12th day of each month, set this parameter to 12:00:00 12th day of every month.

 **NOTE**

If you want to execute a data masking task on the 31st day of each month, the system automatically executes the task on the last day of every month.

**Step 9** Click **Next**.

**Figure 6-37** Setting target data - DLI masking task

Configure Data Source    Set Masking Algorithm    Configure Data Masking Period    **4** Set Target Data

Database Instance	Database	Table Name
DLI_dyl_queue_dyl_test	dyl_test	Enter a table name.

Data Source Column	Risk Level	Target Column
id_card	0	<input type="text" value="id_card"/>
name	0	<input type="text" value="name"/>

1. Select a database instance and database name, and enter the database table name.

If the entered table name already exists, the system will update the data in the existing table.

If the table name is new, it will automatically create and name the table in the target database.

---

**CAUTION**

Do not fill in an existing service data table. Otherwise, services may be affected.

---

2. Set the column name of the target data type.

By default, the system generates a name that is the same as the name of the data source column. You can retain the default name or change it as required.


**Step 10** Click **Finish**.

**Step 11** On the **DLI** page. In the **Operation** column of the target anonymization task, click **Execute**.

**Step 12** The data masking task is executed as configured.

----End

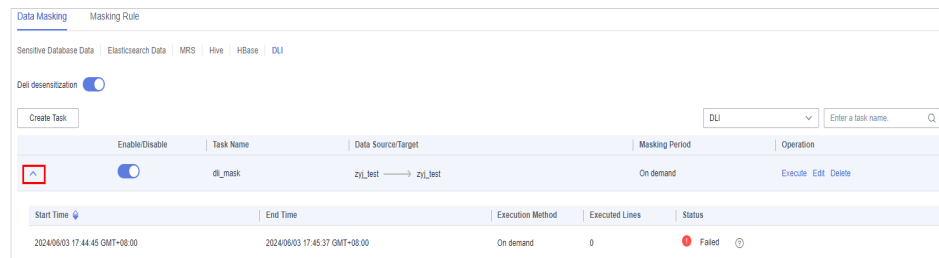
## Checking the Running Status of a DLI Data Masking Task

- On the **DLI** page, click  to view the masking task status, as shown in [Figure 6-38](#).

The task statuses are described as follows:

- **Completed:** The data masking task has been successfully executed.
- **Running:** The data masking task is being executed.
- **Pending execution:** The data masking task is not executed.
- **Stopped:** The data masking task has been manually stopped.
- **Failed:** The data masking task fails to be executed.

**Figure 6-38** Running status of a DLI masking task

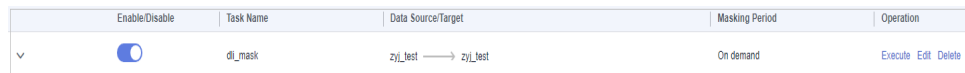


## Editing and Deleting a DLI Masking Task

A masking task in the **Waiting** or **Running** status cannot be edited or deleted.

- In the DLI data masking task list, locate the row containing the target data masking task and click **Edit** in the **Operation** column to modify masking task information. For details, see [Figure 6-39](#).

**Figure 6-39** Editing a DLI masking task



- In the DLI data masking task list, click **Delete** in the **Operation** column.

**Figure 6-40** Deleting a DLI masking task



### CAUTION

Deleted masking tasks cannot be restored. Exercise caution when performing this operation.

## 6.2 Data Watermarking

### 6.2.1 Overview

If data leakage occurs, you can use DSC to extract the watermark information. In this case, the organization or person that is accountable for the leakage problem can be easily found. Adding watermarks does not affect the distributed data usage.

**Table 6-8** Supported database types

Database Type	Data Type
DWS	smallint, integer, bigint, float4, float8, varchar, text, and char



Database Type	Data Type
MRS-HIVE	smallint, int, long, float, double, and string

**Table 6-9** Supported file types

Type	Format
Document	pdf, pptx, docx, and xlsx
Images (invoking image watermark APIs)	*.jpg, *.jpeg, *.jpe, *.png, *.bmp, *.dib, *.rle, *.tiff, *.tif, *.ppm, *.webp, *.tga, *.tpic, and *.gif
JSON data (invoking data watermark APIs)	The value can be an integer, floating-point number, or string.

## Application Scenarios

Data watermarking is widely used in government departments, healthcare agencies, finance institutions, academic institutes, and other organizations. It is generally used for **copyright protection** and **source tracing**.

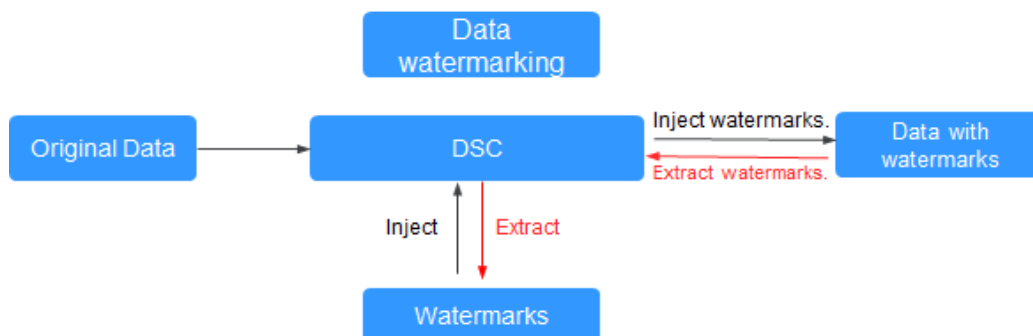
- **Data copyright protection:** In scenarios where digital works are downloaded or copied for use and database services (data mining and analysis) provide data to third parties, digital watermarks can be used to identify the copyright when disputes occur,
- **Source tracing:** Data provided for internal employees or third parties can be injected with watermarks to identify the ownership and remind them of keeping the data secure. When the data leaked, the watermarks can be used to trace the source of data leak and identify the root cause.

## Advantages and Highlights

- **Visible and invisible watermarks:** You can inject visible or invisible watermarks into the data as needed to efficiently cope with data theft through image process tools, picture taking, or screenshots.
- **Detectable and tamper-proofing:** Watermarks injected into the data can be detected and will not be lost, fabricated, and tampered with.
- **High robustness:** Watermarks are not easily removed during transmission or use. Even if the data carrier is tampered with or damaged, there is a high probability that watermarks are extracted.

## Procedure

Figure 6-41 Data watermarking process



## 6.2.2 Injecting Watermarks

### 6.2.2.1 Injecting Watermarks to Databases

#### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- An RDS or GaussDB(DWS) database has been authorized. For details, see [Authorizing Access to Database Assets](#).
- An MRS database has been authorized. For details, see [Authorizing Access to Big Data Assets](#).
- You have configured the GaussDB(DWS) and MRS\_Hive permissions. For details, see [\(Optional\) Configuring GaussDB\(DWS\) and MRS Hive](#).


#### Constraints

- GaussDB(DWS) data supports the following watermarks: smallint, integer, bigint, float4, float8, varchar, text, and char.
- MRS Hive data supports the following watermarks: smallint, int, long, float, double, and string.
- A single column in the embedding target cannot have more than 30% redundant data.
- The database encoding is UTF-8.
- The database injection is a non-primary key column.
- It is recommended that the number of data rows in a data table be greater than 1500.

## Creating a Sensitive Data Identification Task

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Data Asset Protection > Database Watermark**.

**Step 5** Click **Create Task**. The **Configure basic information** page is displayed.

**Figure 6-42** Configuring basic information

**Table 6-10** Parameters for configuring basic information

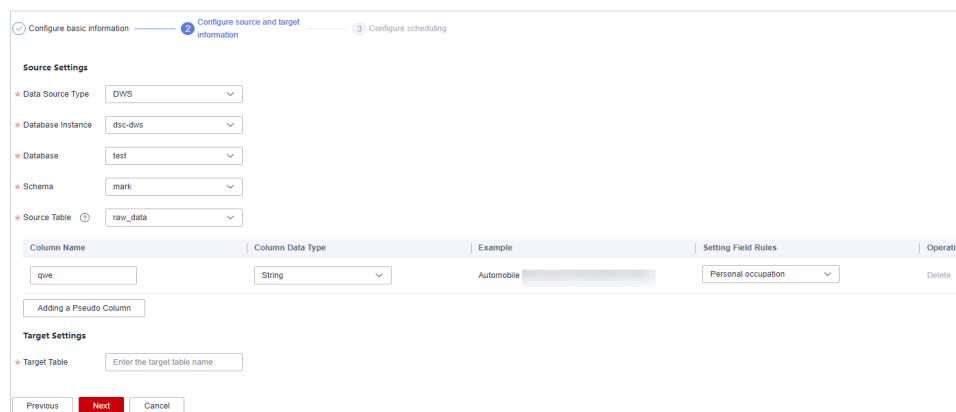
Parameter	Description
Task Name	Enter a task name.
Watermark ID	Enter the watermark identifier to be injected.

Parameter	Description
Embedding Scheme	<p>Click the drop-down list box to select a watermark embedding scheme. The options are as follows:</p> <ul style="list-style-type: none"> <li> <b>Lossless - pseudo-column watermark:</b> A pseudocolumn related to other attributes of the relationship table is generated. The pseudocolumn is deceptive to attackers. Watermarks are embedded into the pseudocolumn to reduce damage to the original data.         </li> <li> <b>Lossless - pseudo-line watermark:</b> Pseudo lines are generated based on the data type, data format, and value range. Watermarks are embedded into these pseudo lines to reduce damage to the original data.         </li> <li> <b>Lossy - column watermark:</b> If you directly add watermarks to column data, the data will be modified or damaged.         </li> </ul> <p><b>NOTE</b> A higher error correction level indicates more watermark bits and a lower bit error rate (BER) during source tracing. Note that a higher error correction level requires more data as the embedding target to ensure embedding integrity. The default value is 1.</p>

**Step 6** Click **Next**. On the **Configure source and target information** page, set related parameters.

- Lossless - pseudocolumn watermark:** Embed watermarks to newly created columns to avoid data loss.

**Figure 6-43** Pseudocolumn watermarks



**Table 6-11** Source and destination parameters of pseudocolumn watermarks

Parameter	Description
Data Source Type	Select a data source type from the drop-down list box. <ul style="list-style-type: none"><li>– When <b>Embedding Scheme</b> is set to <b>Lossy - Column Watermark</b>, the following data source types are supported:<ul style="list-style-type: none"><li>▪ DWS</li><li>▪ MRS_HIVE</li></ul></li><li>– When <b>Embedding Scheme</b> is set to <b>Lossless pseudo-column watermarking</b> or <b>Lossless pseudo-line watermarking</b>, the following data types are supported:<ul style="list-style-type: none"><li>▪ DWS</li><li>▪ PostgreSQL</li><li>▪ MySQL</li></ul></li></ul>
Database Instance	Select a <b>Database Instance</b> from the drop-down list. If no database instance is available, add databases by following the instructions provided in sections <a href="#">Authorizing Access to Database Assets</a> and <a href="#">Authorizing Access to Big Data Assets</a> .
Database	Select a <b>Database</b> from the drop-down list.
Schema	This parameter is displayed when <b>Database</b> is <b>DWS</b> or <b>PostgreSQL</b> . Click a <b>Mode</b> as required.
Source Table	Select the corresponding <b>Source Table</b> name.
Column Name	Only letters, numbers, underscores (_), and hyphens (-) are allowed (255 characters max).
Column Data Type	Click to select the data type of the embedded pseudocolumn. <ul style="list-style-type: none"><li>– Numeric</li><li>– String</li><li>– Date</li></ul>
Example Value	Choose <b>Setting Field Rules</b> . The embedded pseudocolumn data example is displayed.

Parameter	Description
Setting Field Rules	<ul style="list-style-type: none"> <li>- If <b>Column Data Type</b> is set to <b>Numeric</b>, this parameter is a random number. You can specify the range and precision of the random number. If the range and precision are not specified, pseudo data will be randomly generated.</li> <li>- When <b>Column Data Type</b> is set to <b>String</b>, you can select pseudo data such as the person name, ID card number, and mobile number from the drop-down list box.</li> <li>- When the <b>Column Data Type</b> is set to <b>Date</b>, you can specify a date range. If no date range is specified, pseudo data is randomly generated.</li> </ul>
Add a Pseudo Column	You can click <b>Add a Pseudo Column</b> to add two pseudo-columns,
Target Table	Enter the target table name. The name can contain only letters, digits, underscores (_), and hyphens (-) and cannot exceed 255 characters.

- **Lossless - pseudo-line watermark:** Watermarks are embedded into line copies to avoid data loss.

Figure 6-44 Pseudo-line watermark

Configure basic information — 2 Configure source and target information — 3 Configure scheduling information

**Source Settings**

- \* Data Source Type: DWS
- \* Database Instance: dsc\_test
- \* Database: info
- \* Schema: fake
- \* Source Table (?): 1col
- \* Number of pseudo-line spans: 1

**Target Settings**

- \* Target Table: fd

Previous Next Cancel

**Table 6-12** Source and destination parameters of pseudo-line watermarks

Parameter	Description	Example Value
Data Source Type	Select a <b>Data Source Type</b> from the drop-down list. The following data source types are supported: <ul style="list-style-type: none"><li>- DWS</li><li>- PostgreSQL</li><li>- MySQL</li></ul>	DWS
Database Instance	Select a <b>Database Instance</b> from the drop-down list. If no database instance is available, add databases by following the instructions provided in sections <a href="#">Authorizing Access to Database Assets</a> and <a href="#">Authorizing Access to Big Data Assets</a> .	DWS-dsc-Test
Database	Select a <b>Database</b> from the drop-down list.	gaussdb
Mode	This parameter is displayed when <b>Database</b> is <b>DWS</b> or <b>PostgreSQL</b> . Click a <b>Mode</b> as required.	pg_catalog
Source Table	Click and select the corresponding source data table name.	pg_proc
Number of Pseudo-Line Spans	Enter the number of pseudo lines. The value must be a valid integer greater than 1.	10
Target Table	Enter the name of the data storage table with watermarks embedded. The name can contain only letters, digits, underscores (_), and hyphens (-), and cannot exceed 255 characters.	Test_Table

- **Lossy - column watermark:** Embed watermarks directly to the column data.

**Figure 6-45** Lossy column watermarks

The screenshot shows a configuration wizard with three steps: 1. Configure basic information, 2. Configure source and target information (current step), and 3. Configure scheduling. Under 'Source Settings', the following fields are filled: Data Source Type (DWS), Database Instance (dsc-dws), Database (udf\_db), Schema (mask), and Source Table (5kw). Below this is a 'Watermark Embedding Bar' table with one row: 'id\_card' (checked) with 'character varying' data type. Under 'Target Settings', the Target Table is 'fd'. At the bottom are 'Previous', 'Next', and 'Cancel' buttons.

**Table 6-13** Source and destination parameters of lossy column watermarks

Parameter	Description	Example Value
Data Source Type	Select a <b>Data Source Type</b> from the drop-down list. The following data source types are supported: <ul style="list-style-type: none"> <li>- DWS</li> <li>- MRS-HIVE</li> </ul>	DWS
Database Instance	Select a <b>Database Instance</b> from the drop-down list. If no database instance is available, add databases by following the instructions provided in sections <a href="#">Authorizing Access to Database Assets</a> and <a href="#">Authorizing Access to Big Data Assets</a> .	DWS-dsc-Test
Database	Select a <b>Database</b> from the drop-down list.	gaussdb



Parameter	Description	Example Value
Mode	This parameter is displayed when the <b>Database</b> is <b>DWS</b> . Click a <b>Mode</b> as required.	pg_catalog
Source Table	Select the corresponding <b>Source Table</b> name.	pg_proc
Watermark Embedding Bar	Click to select the column data to which watermarks are embedded. You can select multiple columns. <b>NOTE</b> <ul style="list-style-type: none"><li>- The source database character set must be UTF-8.</li><li>- A single column in the embedding target cannot have more than 30% redundant data.</li></ul>	-
Target Table	Enter the name of the data storage table with watermarks embedded. The name can contain only letters, digits, underscores (_), and hyphens (-), and cannot exceed 255 characters.	Test_Table

**Step 7** Click **Next**. The **Configuring scheduling** page is displayed.

**Figure 6-46** Configuring scheduling

Configure basic information — Configure source and target information — **3** Configure scheduling

\* Scheduling Parameter  Once  Daily  Weekly  Monthly

\* Start Time

- If the **Scheduling Parameter** is set to **Once**, you can select **Now** or **As scheduled** to start the watermark embedding task.
- If the **Scheduling Parameter** is set to **Daily**, **Weekly**, or **Monthly**, start the watermark embedding task at a specified time daily, weekly, or monthly.


**Step 8** Click **Finish**.

----End

## Running Tasks

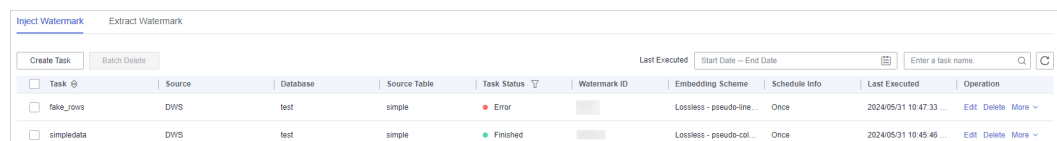
**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Data Asset Protection > Database Watermark**.

**Figure 6-47** Database watermark injection



Task ID	Source	Database	Source Table	Task Status	Watermark ID	Embedding Scheme	Schedule Info	Last Executed	Operation
fake_rows	DWS	test	simple	Error		Lossless - pseudo-line...	Once	2024/05/31 10:47:33 ...	Edit Delete More
simplifiedata	DWS	test	simple	Finished		Lossless - pseudo-col...	Once	2024/05/31 10:45:45 ...	Edit Delete More

**Step 5** In the **Operation** column of the target task, choose **More > Running**.


----End

## Starting a Task

This parameter is displayed when the watermarking task is a scheduled task.

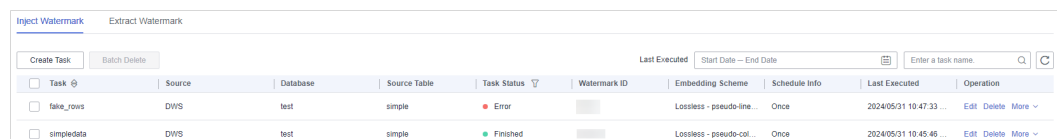
**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Data Asset Protection > Database Watermark**.

**Figure 6-48** Database watermark injection



Task ID	Source	Database	Source Table	Task Status	Watermark ID	Embedding Scheme	Schedule Info	Last Executed	Operation
fake_rows	DWS	test	simple	Error		Lossless - pseudo-line...	Once	2024/05/31 10:47:33 ...	Edit Delete More
simplifiedata	DWS	test	simple	Finished		Lossless - pseudo-col...	Once	2024/05/31 10:45:45 ...	Edit Delete More


**Step 5** In the **Operation** column of the target task, choose **More > Start Task**.


----End

## Stopping a Task

This parameter is displayed when the watermarking task is a scheduled task.

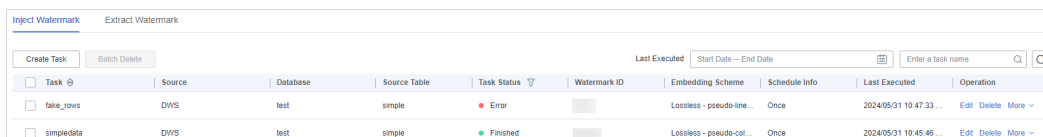
**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Data Asset Protection > Database Watermark**.

**Figure 6-49** Database watermark injection



Task ID	Source	Database	Source Table	Task Status	Watermark ID	Embedding Scheme	Schedule Info	Last Executed	Operation
fake_rows	DWS	test	simple	Error		Lossless - pseudo-line	Once	2024/05/31 10:47:33	Edit Delete More
simpledata	DWS	test	simple	Finished		Lossless - pseudo-col	Once	2024/05/31 10:45:45	Edit Delete More

**Step 5** In the **Operation** column of the target task, choose **More > Stop Task**.

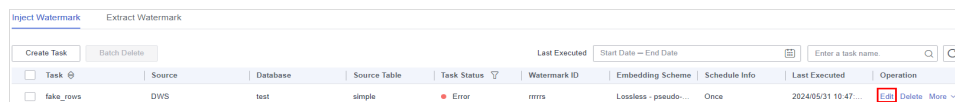
----End

## Editing and Deleting an Embedded Watermark Task

A running watermark embedding task cannot be edited or deleted.

- Click **Edit** in the **Operation** column to modify the watermark embedding task configuration.

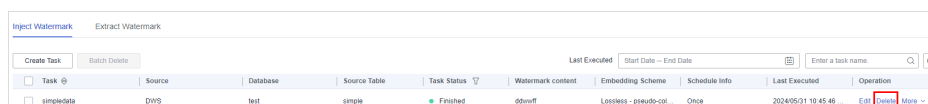
**Figure 6-50** Edit embedded watermark task



Task ID	Source	Database	Source Table	Task Status	Watermark ID	Embedding Scheme	Schedule Info	Last Executed	Operation
fake_rows	DWS	test	simple	Error	rtrrs	Lossless - pseudo...	Once	2024/05/31 10:47:...	Edit Delete More

- Click **Delete** in the **Operation** column of the target task. You can also select multiple tasks and click **Batch Delete** to delete them.

**Figure 6-51** Deleting a watermark embedding task



Task ID	Source	Database	Source Table	Task Status	Watermark content	Embedding Scheme	Schedule Info	Last Executed	Operation
simpledata	DWS	test	simple	Finished	dduuff	Lossless - pseudo-col	Once	2024/05/31 10:45:46	Edit Delete More

### NOTE

The deletion cannot be undone.

## 6.2.2.2 Injecting Watermarks to Documents

On the DSC console, you can insert custom watermarks in PDF, PPT, Word, and Excel documents. This section describes how to insert customized watermarks into local files or cloud files (files stored in the OBS bucket).

### Prerequisites

- OBS asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).

- OBS has been enabled and used.
- The document format is PDF, PPTX, DOCX, or XLSX.


## Constraints

- The maximum size of a PDF or Word file is 50 MB.
- The maximum size of an Excel file is 70 MB.
- The maximum size of a PPT file is 20 MB.

## Creating a Watermark Injection Task for Files in an OBS Bucket

**Step 1** Log in to the management console.

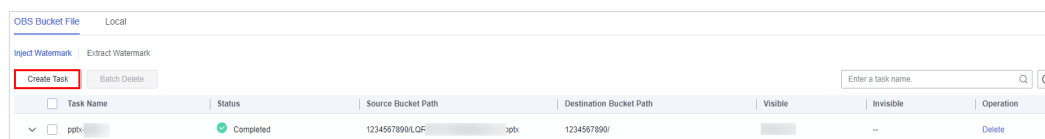
**Step 2** Click  in the upper left corner and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Data Asset Protection > Document Watermarking**.

**Step 5** Click **Create Task** in the upper left corner of the task list to create a task.

**Figure 6-52** Creating a task



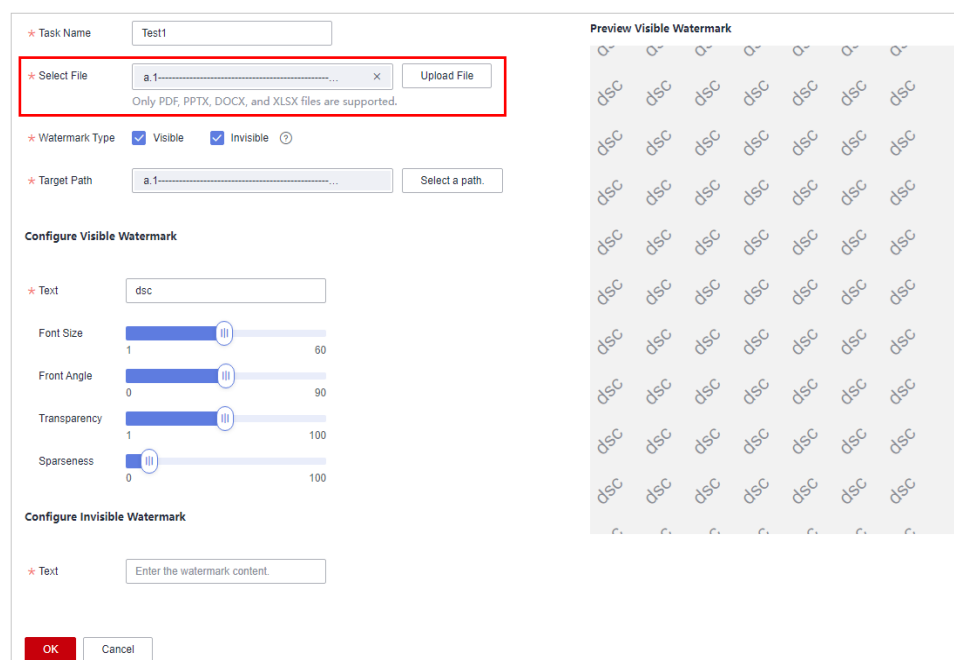
**Step 6** Set the parameters shown in [Table 6-14](#).

**Table 6-14** Task parameters


Parameter	Description
Task Name	Enter the watermark ingestion task name.
Select File	Click <b>Add File</b> . In the right pane, select the name of the bucket to which you want to add a watermark. In the left pane, select a file. You can select multiple files.
Watermark Type	Both visible and invisible watermarks are supported. You can select multiple values. <ul style="list-style-type: none"><li>• Visible watermark: The watermark text is displayed in the file, as shown in <b>Preview Visible Watermark</b> in <a href="#">Figure 6-53</a>.</li><li>• Invisible watermark: The watermark text is invisible and needs to be extracted using tools. For details about how to extract an invisible watermark, see <a href="#">Extracting Watermarks from Documents</a>.</li></ul>
Target Path	Click <b>selecting a file path</b> , and select the watermarked file.

Parameter	Description
Configure Visible Watermark	Set the <b>Watermark Type</b> to <b>Visible Watermark</b> . Then, drag the slider to set the <b>Text</b> , <b>Font Size</b> , <b>Font Angle</b> , <b>Sparseness</b> , and <b>Transparency</b> .
Configure Invisible Watermark	This parameter is mandatory when <b>Watermark Type</b> is set to <b>Invisible</b> . Set <b>Text</b> as required.

**Figure 6-53** Inserting Watermarks

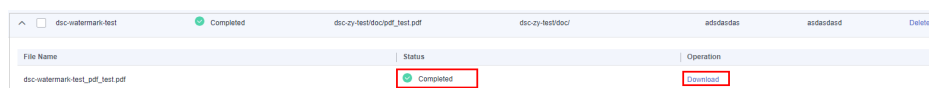


**Step 7** Click **OK**. A message is displayed in the upper right corner, indicating that the watermark injection task is created successfully.

**Step 8** In the watermark task list, click  next to the task name to view the task running status.



- If the injected watermark is a visible watermark, click **Download** to obtain the watermark file.
- If you injected an invisible watermark, extract the watermark from the target file using tools. For details, see [Extracting Watermarks from Documents](#).

**Figure 6-54** Injecting watermarks to files



----End

## Creating a Local File Data Injection Task

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Data Asset Protection > Document Watermarking**.
- Step 5** Click the **Local File** tab. The **Watermark Injection** page is displayed.
- Step 6** Click **Select File**, and select the file to which the watermark is to be injected.
- Step 7** After the file is uploaded, configure related parameters, as shown in [Figure 6-55](#). [Table 6-15](#) describes the related parameters.

**Table 6-15** Watermarking parameters

Parameter	Description
Watermark Type	Both visible and invisible watermarks are supported. You can select multiple values. <ul style="list-style-type: none"><li>• Visible watermark: The watermark text is displayed in the file, as shown in <b>Preview Visible Watermark</b> in <a href="#">Figure 6-55</a>.</li><li>• Invisible watermark: The watermark text is invisible and needs to be extracted using tools. For details about how to extract an invisible watermark, see <a href="#">Extracting Watermarks from Documents</a>.</li></ul>
Configure Visible Watermark	Set the <b>Watermark Type</b> to <b>Visible Watermark</b> . Then, drag the slider to set the <b>Text</b> , <b>Font Size</b> , <b>Font Angle</b> , <b>Sparseness</b> , and <b>Transparency</b> .
Configure Invisible Watermark	This parameter is mandatory when <b>Watermark Type</b> is set to <b>Invisible</b> . Set <b>Text</b> as required.



### 6.2.2.3 Injecting Watermarks to Images

The DSC console offers a feature for injecting watermarks into JPG or JPEG files. You can refer to this section to apply customized watermarking to your cloud-stored files in OBS buckets or to images on your local device.

#### Prerequisites

- OBS asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- OBS has been enabled and used.
- Currently, the following image format is supported: .jpg, .jpeg, .jpe, .png, .bmp, .dib, .rle, .tiff, .tif, .ppm, .webp, .tga, .tpic, .gif.


#### Constraints

- The maximum size of an image is 20 MB.
- The resolution of the image to be watermarked must be greater than 128 x 128 pixels.
- The maximum length of the invisible text watermark is 32 characters.

### Injecting Watermarks into OBS Bucket Files

**Step 1** Log in to the management console.

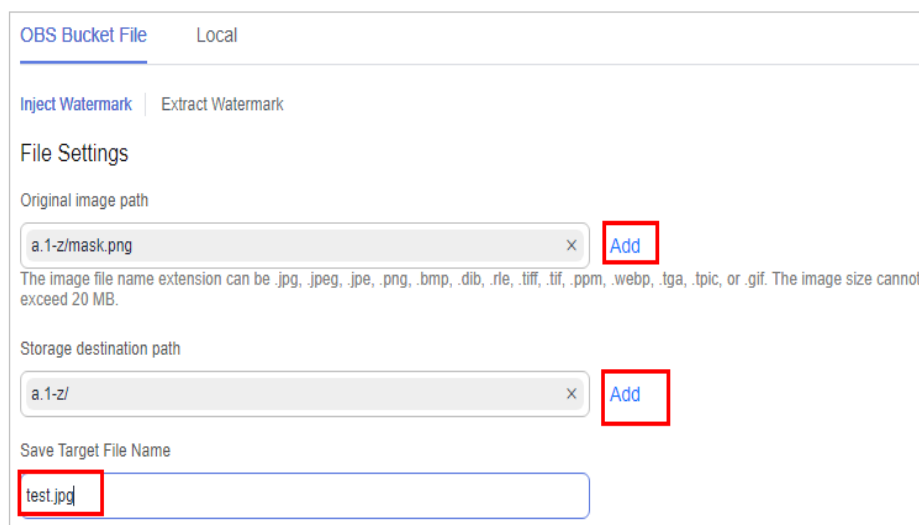
**Step 2** Click  in the upper left corner and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Data Asset Protection > Image Watermarking**. The **Image Watermarking** page is displayed.

**Step 5** On the **OBS Bucket Files** tab page, set the path in the **File Settings** area.

**Figure 6-56** File settings



OBS Bucket File Local

Inject Watermark Extract Watermark

File Settings

Original image path

a.1-z/mask.png x Add

The image file name extension can be .jpg, .jpeg, .jpe, .png, .bmp, .dib, .rle, .tiff, .tif, .ppm, .webp, .tga, .tpic, or .gif. The image size cannot exceed 20 MB.

Storage destination path

a.1-z/ x Add

Save Target File Name

test.jpg



1. Click **Add** next to **Original image path** to select the cloud path of the original images. The size of the selected image cannot exceed 20 MB.
2. Click **Add** next to **Storage destination path** to select the destination storage path.
3. Click the **Save Target File Name** text box and enter the name of the watermarked image file. The file name contains a maximum of 32 characters, and the file name extension is \*.jpg, \*.jpeg, \*.jpe, \*.png, \*.bmp, \*.dib, \*.rle, \*.tiff, \*.tif, \*.ppm, \*.webp, \*.tga, \*.tpic, or \*.gif.

**Step 6 Watermark type** can be **visible watermark** and **invisible watermark**.

- Visible watermark: The watermark content is displayed on the image, as shown in **Preview Visible Watermark**. [Figure 6-57](#) describes the related parameters.

**Table 6-16** Configuring a visible watermark

Parameter	Description
Watermark Content	Select the <b>Watermark Content</b> from the drop-down list box. <ul style="list-style-type: none"><li>- <b>Image watermark</b></li><li>- <b>Text watermark</b>.</li></ul>
Image Path	If <b>Watermark Content</b> is set to <b>Image watermark</b> , click <b>Add</b> to select an image on the cloud as the watermark.  The watermark image must be in the same area as the original image. Otherwise, the preview fails.
Text Content	If <b>Watermark Content</b> is set to <b>Text Watermark</b> , click the text box and enter the text watermark content. The value contains 1 to 32 characters, including only digits and case-sensitive letters.
Watermark Position	Select the position where the watermark is injected.
Image Size	Absolute size of the image to be injected. This parameter is displayed when <b>Watermark Content</b> is set to <b>Image watermark</b> . The value ranges from 0 to 100.
Watermark Size	Size of the text watermark to be injected. This parameter is displayed when <b>Watermark Content</b> is set to <b>Text watermark</b> . The value ranges from 1 to 100.
Watermark Transparency	Transparency of the watermark to be injected. The value ranges from 1 to 100.

Parameter	Description
Horizontal Margin	Horizontal margin of the watermark to be injected relative to the image. The value ranges from 0 to 100.
Vertical Margin	Vertical margin of the watermark to be injected relative to the image. The value ranges from 0 to 100.
Font Color	This parameter is displayed when <b>Watermark Content</b> is set to <b>Text watermark</b> . You can click the color bar to select the font color of the text watermark to be injected.

**Figure 6-57** Configuring a visible watermark

Configure Visible Watermark

Watermark Content  
Text watermark

Text Content  
The text watermark can contain 1 to 16 characters. Currently, only digits and uppercase and lowercase letters are supported.

Watermark Position

Watermark Position: 50

Watermark Transparency: 50

Horizontal Margin: 0

Vertical Margin: 0

Font Color

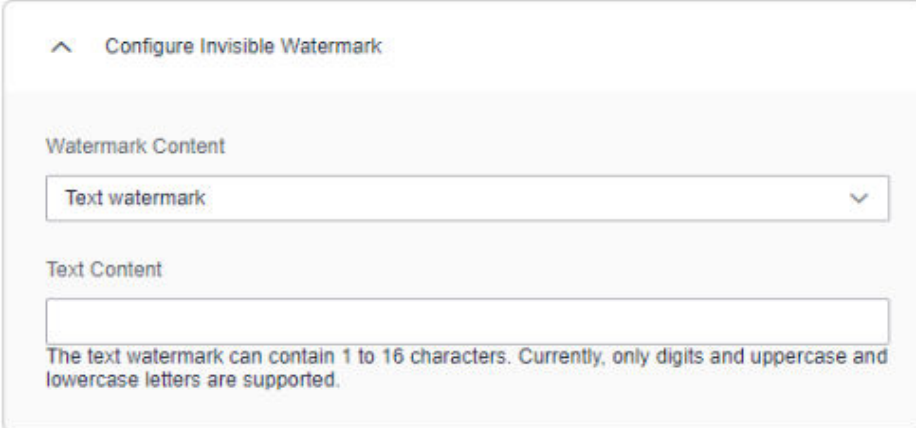
- Invisible watermark: The watermark text is invisible and needs to be extracted using tools. For details about how to extract an invisible watermark, see [Extracting Watermarks from Images](#).

**NOTE**

For effective watermark embedding, the resolution of the watermark image should be at least 64 x 64 pixels. Upon extraction, the watermark will be displayed as a downscaled version, resized to precisely 64 x 64 pixels.

**Table 6-17** Configuring an invisible watermark

Parameter	Description
Watermark Content	Select the <b>Watermark Content</b> from the drop-down list box. <ul style="list-style-type: none"><li>- <b>Image watermark</b></li><li>- <b>Text watermark.</b></li></ul>
Text Content	If <b>Watermark Content</b> is set to <b>Text Watermark</b> , click the text box and enter the text watermark content. The value contains 1 to 32 characters.
Image path	If <b>Watermark Content</b> is set to <b>Image watermark</b> , click <b>Add</b> to select an image on the cloud as the watermark.

**Figure 6-58** Configuring an invisible watermark

Configure Invisible Watermark

Watermark Content

Text watermark

Text Content

The text watermark can contain 1 to 16 characters. Currently, only digits and uppercase and lowercase letters are supported.

**Step 7** After parameters are configured, click **OK**. The file with watermark injected is automatically downloaded to the specified path on the local PC.

**NOTICE**

- If you injected a visible watermark, open the target file to view the watermark.
- If you injected an invisible watermark, extract the watermark from the target file using tools. For details, see [Extracting Watermarks from Images](#).

**Step 8** Click **Preview** to preview the watermark effect in the visible watermark preview area on the right. The invisible watermark cannot be previewed.


**Step 9** Click **OK** to complete watermark injection.

----End

## Creating a Local File Watermark Injection Task

**Step 1** Log in to the management console.

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

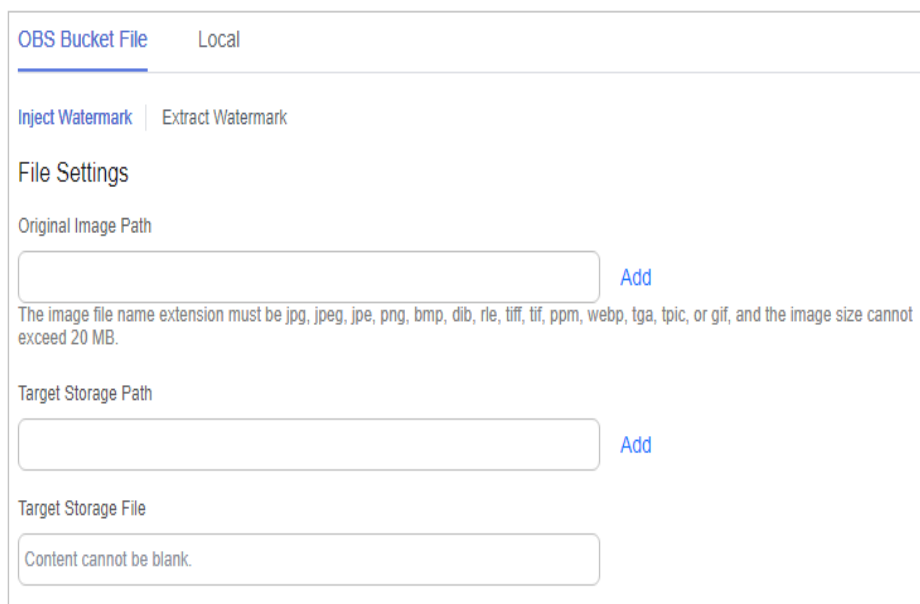
**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Data Asset Protection > Image Watermarking**. The **Image Watermarking** page is displayed.

**Step 5** Click the **Local File** tab. The **Watermark Injection** page is displayed.

**Step 6** Set the path in the **File Settings** area, as shown in [Figure 6-59](#).

**Figure 6-59** Injecting watermarks into a local file



OBS Bucket File Local

Inject Watermark Extract Watermark

File Settings

Original Image Path

Add

The image file name extension must be jpg, jpeg, jpe, png, bmp, dib, rle, tiff, tif, ppm, webp, tga, tpic, or gif, and the image size cannot exceed 20 MB.

Target Storage Path

Add

Target Storage File

Content cannot be blank.

1. Click **Add** next to **Original image path** to select the cloud path of the original images. The size of the selected image cannot exceed 20 MB.
2. Click **Add** next to **Storage destination path** to select the destination storage path.
3. Click the **Save Target File Name** text box and enter the name of the watermarked image file. The file name contains a maximum of 32 characters, and the file name extension is \*.jpg, \*.jpeg, \*.jpe, \*.png, \*.bmp, \*.dib, \*.rle, \*.tiff, \*.tif, \*.ppm, \*.webp, \*.tga, \*.tpic, or \*.gif.

**Step 7** **Watermark type** can be **visible watermark** and **invisible watermark**.

- Visible watermark: Watermarks are visible on images.

- Invisible watermark: The watermark text is invisible and needs to be extracted using tools. For details about how to extract an invisible watermark, see [Extracting Watermarks from Images](#).

**Step 8** Set the watermark parameters according to [Table 6-18](#).

**Table 6-18** Watermark settings

Water mark Type	Parameter	Description
Visible water mark	Watermark Content	Select the <b>watermark content</b> from the drop-down list box. <ul style="list-style-type: none"><li>• <b>Image watermark</b></li><li>• <b>Text watermark.</b></li></ul>
	Watermark Image	When <b>Watermark Content</b> is set to <b>Image watermark</b> , click <b>Add File</b> to add an image as the watermark. The watermark image must be in the same area as the original image. Otherwise, the preview fails.
	Text Content	This parameter is displayed when <b>Watermark content</b> is set to <b>Text watermark</b> . Click the text box to enter the text watermark content. The text watermark contains 1 to 32 characters, including only digits and case-sensitive letters.
	Watermark Position	Select the position where the watermark is injected.
	Image Size	Absolute size of the image to be injected. This parameter is displayed when <b>Watermark Content</b> is set to <b>Image watermark</b> . The value ranges from 0 to 100.
	Watermark Size	Size of the text watermark to be injected. This parameter is displayed when <b>Watermark Content</b> is set to <b>Text watermark</b> . The value ranges from 1 to 100.
	Watermark Transparency	Transparency of the watermark to be injected. The value ranges from 1 to 100.
	Horizontal Margin	Horizontal margin of the watermark to be injected relative to the image. The value ranges from 0 to 100.
	Vertical Margin	Vertical margin of the watermark to be injected relative to the image. The value ranges from 0 to 100.

Water mark Type	Parameter	Description
	Font Color	This parameter is displayed when <b>Watermark Content</b> is set to <b>Text watermark</b> . You can click the color bar to select the font color of the text watermark to be injected.
Invisible watermark	Watermark Content	Select the <b>watermark content</b> from the drop-down list box. <ul style="list-style-type: none"><li>• <b>Image watermark</b></li><li>• <b>Text watermark.</b></li></ul>
	Watermark Image	This parameter is displayed when <b>Watermark Content</b> is set to <b>Image watermark</b> . Click <b>Add File</b> to select a local image as the watermark.
	Text Content	This parameter is displayed when <b>Watermark Content</b> is set to <b>Text watermark</b> . Click the text box to enter the watermark text content.

**Step 9** After parameters are configured, click **OK**. The file with watermark injected is automatically downloaded to the specified path on the local PC.

#### NOTICE

- If you injected a visible watermark, open the target file to view the watermark.
- If you injected an invisible watermark, extract the watermark from the target file using tools. For details, see [Extracting Watermarks from Images](#).

----End

## 6.2.3 Extracting Watermarks

### 6.2.3.1 Extracting Watermarks from Databases

#### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- An RDS or GaussDB(DWS) database has been authorized. For details, see [Authorizing Access to Database Assets](#).
- An MRS database has been authorized. For details, see [Authorizing Access to Big Data Assets](#).
- You have configured the GaussDB(DWS) and MRS\_Hive permissions. For details, see [\(Optional\) Configuring GaussDB\(DWS\) and MRS Hive](#).

## Constraints

- The source file must be in CSV format and cannot be larger than 20 MB.
- The table may contain more than 1,500 rows of data.
- The CSV file content is encoded in UTF-8 mode. Ensure that the data is complete and correct.

## Creating a Task



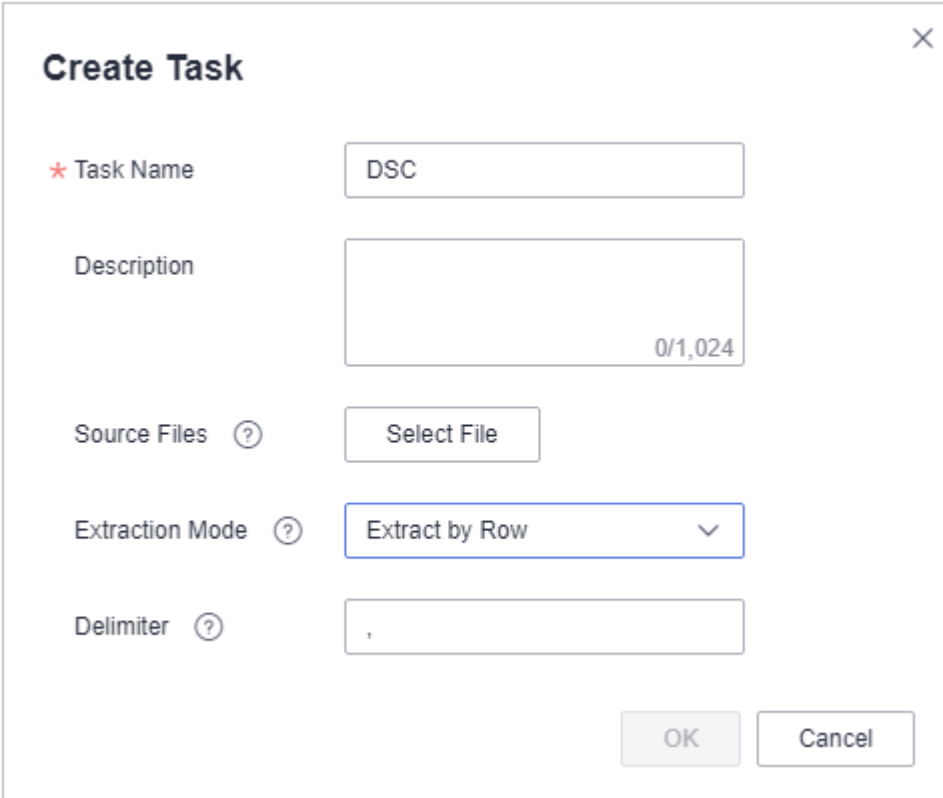
- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation pane, choose **Data Asset Protection > Database Watermark**.
- Step 5** Click the **Extract Watermark** tab.
- Step 6** Click **Create Task**. In the displayed dialog box, set parameters based on [Table 6-19](#).

Figure 6-60 Creating an extraction task



**Create Task** [X]

\* Task Name

Description  0/1,024

Source Files  ?

Extraction Mode  ?

Delimiter  ?

OK Cancel

**Table 6-19** Creating a watermark extraction task

Parameter	Description
Task Name	Enter a task name.
Source Files	The source file must be in CSV format and cannot be larger than 20 MB. The table may contain more than 1,500 rows of data. The CSV file content is encoded in UTF-8 mode. Ensure that the data is complete and correct.
Extraction Mode	Select a watermark extraction mode from the drop-down list box. For lossy column embedding and lossless column embedding, extract watermarks by column. For lossless line embedding, extract watermarks by row.
Delimiter	Delimiters in a file. For example: comma (,)


**Step 7** Click **OK**.

----End

## Viewing Results

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Data Asset Protection > Database Watermarking**.

**Step 5** Click the **Extract Watermark** tab.

**Step 6** Locate a task and click **View Result** in the **Operation** column.


----End

## Deleting a Watermark Extraction Task

Watermark extraction tasks that are being executed cannot be deleted.

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation pane, choose **Data Asset Protection > Database Watermarking**.



**Step 5** Click the **Extract Watermark** tab.

**Step 6** Click **Delete** in the **Operation** column of the target task. You can also select multiple tasks and click **Batch Delete** to delete them.

 **NOTE**

The deletion cannot be undone.

----End

### 6.2.3.2 Extracting Watermarks from Documents

The content of invisible watermarks cannot be seen and needs to be extracted using tools. This section describes how to extract watermarks from a PDF, PPT, Word, or Excel file stored on the cloud (OBS buckets) or local PC.

#### Prerequisites

- OBS asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- OBS has been enabled and used.
- The file format is PDF, PPT, Word, or Excel.


#### Constraints

- This section focuses on the extractions of invisible watermarks from a single PDF, PPT, Word, or Excel file.
- The maximum size of a PDF or Word file is 50 MB.
- The maximum size of an Excel file is 70 MB.
- The maximum size of a PPT file is 20 MB.

### Creating an OBS Bucket File Watermark Extraction Task

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Data Asset Protection > Document Watermarking**. On the displayed page, click the **OBS File** tab.

**Step 5** Click the **Watermark Extraction** tab. The **Watermark Extraction** page is displayed.

**Step 6** Click **Create Task** in the upper left corner. The **Create Task** page is displayed.

**Figure 6-61** Creating a watermark extraction task

★ Task Name

★ Select File

a.1-----...	X
a.1-----...	X

Only PDF, PPTX, DOCX, and XLSX files are supported.

**Step 7** Click **Add File** to select the file from which you want to extract watermarks. You can select multiple OBS bucket files.

**Figure 6-62** Selecting a file

**Select File on Cloud**

Enter a bucket name.

Bucket
<input type="radio"/> 1234567890
<input type="radio"/> a-real-bucket
<input type="radio"/> a-real-private-obs
<input type="radio"/> a.1-----...
<input type="radio"/> a.1-z
<input checked="" type="radio"/> a.1-z323
<input type="radio"/> asdfasdf12
<input type="radio"/> css-backup-16195131...
<input type="radio"/> css-backup-16196883...
<input type="radio"/> css-backup-16196890...

Total Records: 92 < 1/10 >

Enter an object name prefix.

<input checked="" type="checkbox"/> a.1-z323
<input type="checkbox"/> a.1-z323-dsc-log/
<input checked="" type="checkbox"/> test_new_testzz_test.xlsx

**Step 8** Click **OK**. The watermark extraction task is created.



**Step 9** Click  next to the target task name to view the extracted invisible watermark content.

**Figure 6-63** Invisible watermark

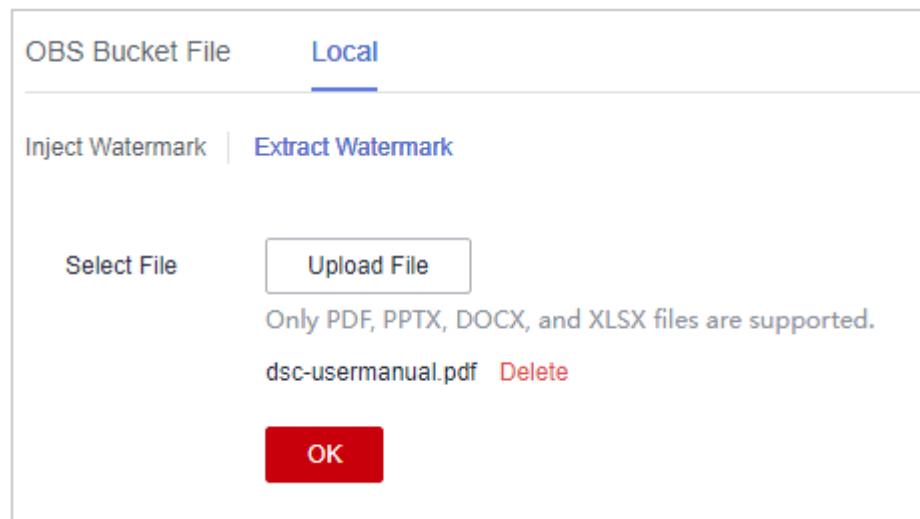


----End

## Extracting Watermarks from Local Files

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Asset Protection > Document Watermarking**. On the displayed page, click the **OBS File** tab.
- Step 5** On the displayed page, choose **Local > Extract Watermark**. The **Extract Watermark** page is displayed.

**Figure 6-64** Extracting watermarks



- Step 6** Upload the local file from which you want to extract the watermark text.


 **NOTE**


Only PDF, PPT, Word, and Excel files are supported.

- Step 7** After the file is uploaded, click **OK**. The invisible watermark content is displayed in the dialog box.

----End

## Related Operations

Click  next to the target watermark injection task name to view the status of the watermark extraction task.

- **Running:** You can view the progress of the watermark extraction task.
- **Completed:** The watermark content is displayed in the **Invisible Watermarks** column. If there are no invisible watermarks, -- is displayed.
- **Failed:** The watermark extraction task fails to be executed. You can move the cursor to  to view the failure cause.

### 6.2.3.3 Extracting Watermarks from Images

The content of an invisible watermark remains unseen until it is retrieved through a specialized watermark extraction tool. The DSC console facilitates this process by offering a watermark extraction feature for images. Detailed instructions on how to extract watermarks from files stored in OBS buckets or from local files are provided in this section.

#### Prerequisites

- OBS asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- OBS has been enabled and used.
- Currently, the following image format is supported: .jpg, .jpeg, .jpe, .png, .bmp, .dib, .rle, .tiff, .tif, .ppm, .webp, .tga, .tpic, .gif.
- The resolution of the original image must be greater than 128 x 128 pixels.


#### Constraints

- Extract invisible watermarks from a single image file.
- The maximum size of an image is 20 MB.
- The invisible watermark content contains a maximum of 32 bytes.

### Extracting Watermarks from an OBS Bucket File

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

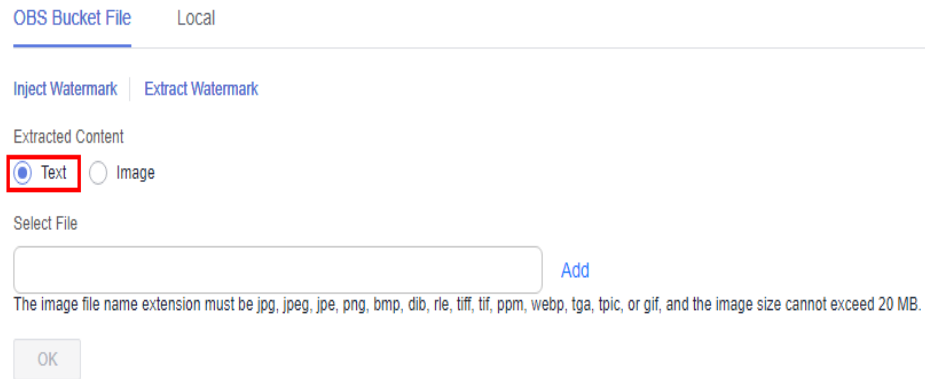
**Step 4** In the navigation tree on the left, choose **Data Asset Protection > Document Watermarking**. On the displayed page, click the **OBS File** tab.

**Step 5** Click the **Watermark Extraction** tab. The **Watermark Extraction** page is displayed.

**Step 6** Select the content to be extracted.

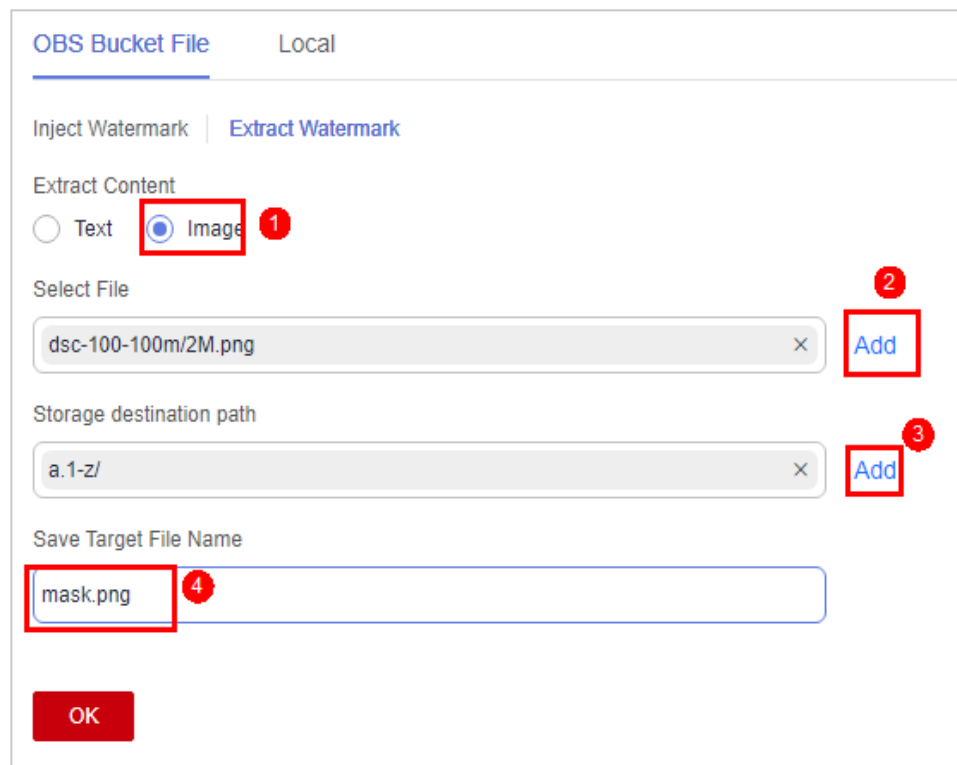
- If **Extract Content** is set to **Text**, click **Add** to select the image from which the watermark is to be extracted.

**Figure 6-65** Extracting text content



- If **Extract Content** is set to **Image**:
  - a. Click **Add** next to **Select File** and select the image from which you want to extract watermarks.
  - b. Click **Add** next to **Storage Destination Path** and select the path for storing the extracted watermark image.
  - c. Click **Save Target File Name** and enter the file name of the watermark image to be extracted.

**Figure 6-66** Extracting image content




**Step 7** Click **OK**. If the **Extract Content** is **Text**, the invisible watermark content is displayed in the dialog box. If the **Extract Content** is **Image**, view the image in the target storage path.

----End

## Extracting Watermarks from a Local File

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Data Asset Protection > Document Watermarking**. On the displayed page, click the **OBS File** tab.

**Step 5** On the displayed page, choose **Local > Extract Watermark**. The **Extract Watermark** page is displayed.

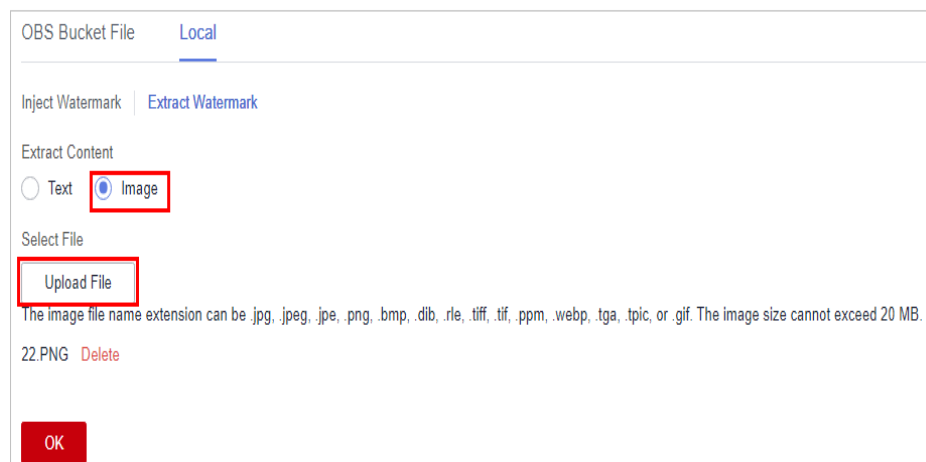
**Step 6** Select the **Extract Content**.

- If the **Extract Content** is **Text**, click **Upload File** to upload the local image whose invisible watermark needs to be extracted to the DSC platform.

**Figure 6-67** Extracting text watermarks



- If the **Extract Content** is **Image**, click **Upload File** to upload the image whose invisible watermark needs to be extracted from the local host to the DSC platform.

**Figure 6-68** Extracting image watermarks

**Step 7** After the file is uploaded, click **OK**. The invisible watermark content is displayed in the dialog box.



----End

## 6.3 (Optional) Configuring GaussDB(DWS) and MRS Hive

Before using database watermarks, you have to:

1. **Modify GaussDB(DWS) cluster parameters.**  
To identify sensitive data and enable privacy protection, you must to adjust the parameter **javaudf\_disable\_feature** of the GaussDB(DWS) cluster. If GaussDB(DWS) data is not involved, you do not need to change the value.
2. **Modify Hive User Rights**  
To perform data watermark operations on MRS Hive data, you must assign related permissions to Hive users as the administrator **Ranger**.

### Modifying Hive User Rights

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click , and choose **Analytics > MapReduce Service**. The **Dashboard** page is displayed.
- Step 4** In the cluster list, click the name of the target cluster. The cluster information page is displayed.
- Step 5** Click **Access Manager** next to **MRS Manager**. In the dialog box that is displayed, click **OK**. The Manager login page is displayed.
- Step 6** Enter the default username **admin** and the password set during cluster creation, and click **Log In**. The Manager page is displayed.

- Step 7** Choose **Cluster > Service > Ranger**. The Ranger service overview page is displayed.
- Step 8** Click **RangerAdmin** in the **Basic Information** area to go to the Ranger web UI. The type of the **admin** user in the Ranger is **User**. Therefore, only the **Access Manager** and **Security Zone** pages can be viewed. You need to switch to the **rangeradmin** user or another user who has the Ranger administrator rights.
1. On the Ranger WebUI, click the username in the upper right corner and choose **Log Out** to log out the current user.
  2. Log in to the system again as user **rangeradmin** or another user who has the Ranger administrator rights.
- Step 9** On the home page, click the plug-in name in the **HADOOP SQL** area, for example, **Hive**.
- Step 10** On the **Access** tab page, click **Add New Policy** to add a Hive permission control policy.
- Step 11** Set related parameters based on permission requirements. Set the key parameters described in [Table 6-20](#). Retain the default values for other parameters.

**Table 6-20** Hive permission parameters

Parameter	Description	Example Value
Policy Name	Policy name, which can be customized and must be unique in the service.	dataarts_dsc
Database	Name of the Hive database to which the policy applies Change <b>database</b> to <b>global. *</b> , the policy takes effect globally.	global: *
Allow Conditions	Policy allowed condition. You can configure permissions and exceptions allowed by the policy. In the <b>Select Role</b> , <b>Select Group</b> , and <b>Select User</b> columns, select the role, user group, or user to which the permission is to be granted, click <b>Add Conditions</b> , add the IP address range to which the policy applies, and click <b>Add Permissions</b> to add the corresponding permission. You need to configure the <b>Select Group</b> , <b>Select User</b> , and <b>Add Permissions</b> columns. <ul style="list-style-type: none"><li>• <b>Select Group</b>: Select the user group you want to use to watermark MRS Hive data.</li><li>• <b>Select User</b>: Select the user you want to use to watermark MRS Hive data. If the user is already in the selected user group, you do not need to select it again.</li><li>• <b>Add Permissions</b>: Select <b>Select/Deselect All</b> to select all permissions.</li></ul>	Example: <ul style="list-style-type: none"><li>• Select Group: dayu_user</li><li>• Select User: dgc_test</li><li>• Add Permissions: All</li></ul>



**Step 12** Click **Add** to view the basic policy information.

----End

# 7 Data Security Operations

---

## 7.1 Situational Awareness Dashboard

There are always such scenarios as presentation, reporting, or real-time monitoring where you need to present the analysis results of DSC on large screens to achieve better demonstration effect. It is not ideal to just zoom in the console. Now, DSC **Dashboard** is a good choice for you to display the service console on bigger screens for a better visual effect.

By default, DSC provides an integrated situational awareness dashboard that presents a thorough analysis of risky assets, identification, masking, and watermarking tasks, as well as events and alarms in the cloud. This dashboard facilitates swift recognition and response to the overall status of assets, including addressing risky assets and urgent alarms.

### Prerequisites

- Cloud asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- DBAS has been enabled.

### Procedure



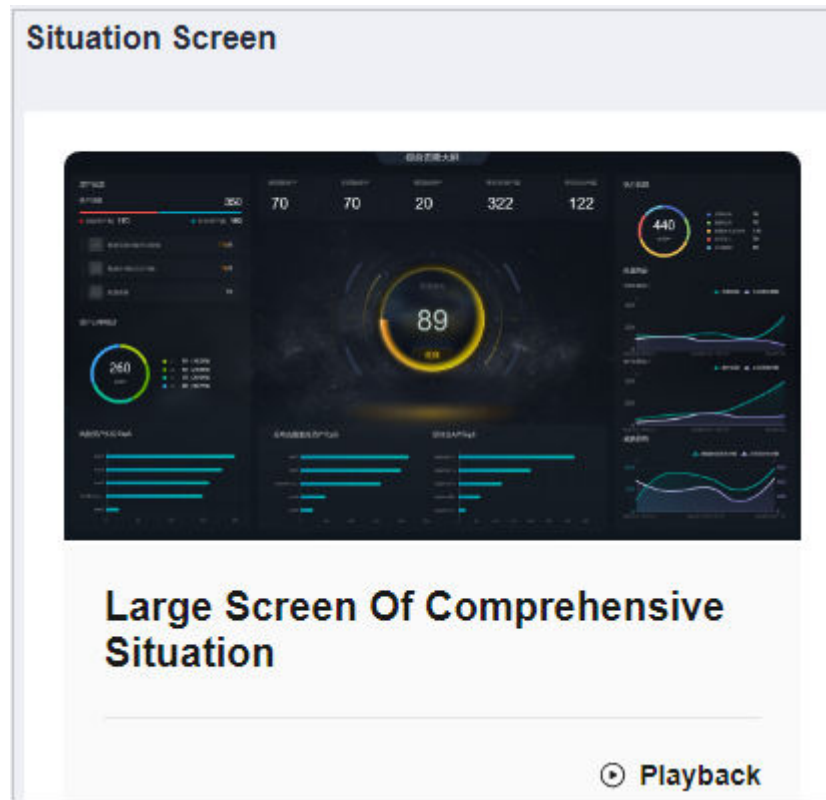
- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Security Operations > Dashboard**. The **Dashboard** page is displayed.

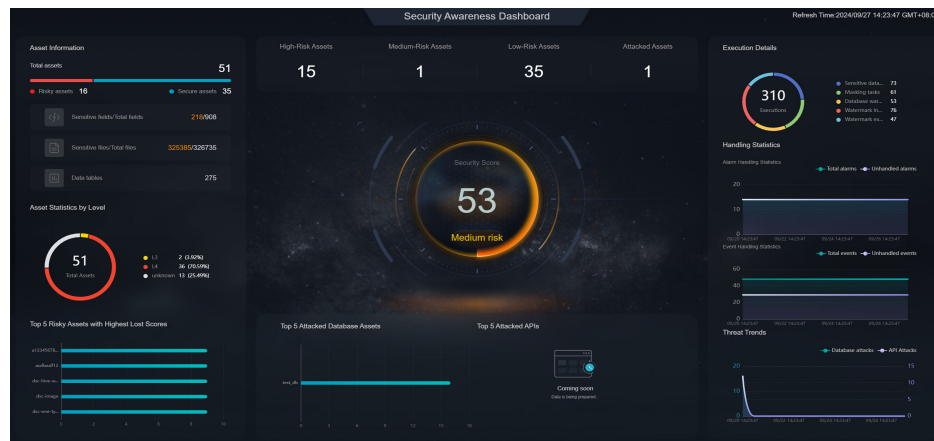
Figure 7-1 Situational Awareness Dashboard



**Step 5** Click the **Dashboard** image. The **Dashboard** page is displayed, as shown in [Figure 7-2](#).

This dashboard includes many graphs.

Figure 7-2 Security awareness dashboard



----End

## Security Score

As shown in [Figure 7-3](#), the security scores of all assets are displayed.

**Table 7-1** Secure score

Parameter	Source	Description
Security Score	Score on the asset map	<p>For details about the score calculation rules, see <a href="#">Viewing Scoring Rules</a>. The criteria for classifying high, medium, and low risks in the final score are as follows:</p> <ul style="list-style-type: none"> <li>• 100: no risk</li> <li>• 81-99: low risk</li> <li>• 51-80: medium risk</li> <li>• 0-50: high risk</li> </ul>

**Figure 7-3** Security score



## Risky Asset Statistics

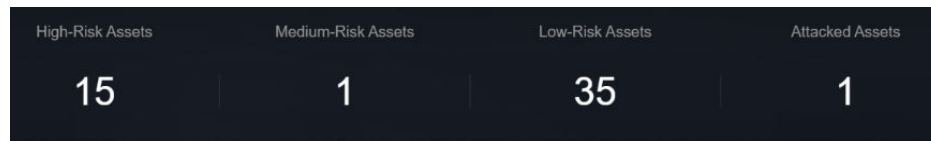
Risk statistics of authorized assets are displayed, as shown in [Figure 7-4](#).

Risky asset statistics come from the **asset map**. To view asset details, go to this [page](#).

**Table 7-2** Security score

Parameter	Source	Description
High/Medium/Low-risk assets	<b>Risk level in Protection Policy Analysis</b>	For details about the calculation rules, see <a href="#">Risk Statistics</a> .
Attacked assets	<b>Alarms in Data Security Operations &gt; Alarm Management</b>	Analyze the number of attacked assets based on alarms in <b>Alarm Management</b> .

**Figure 7-4** Risky asset statistics



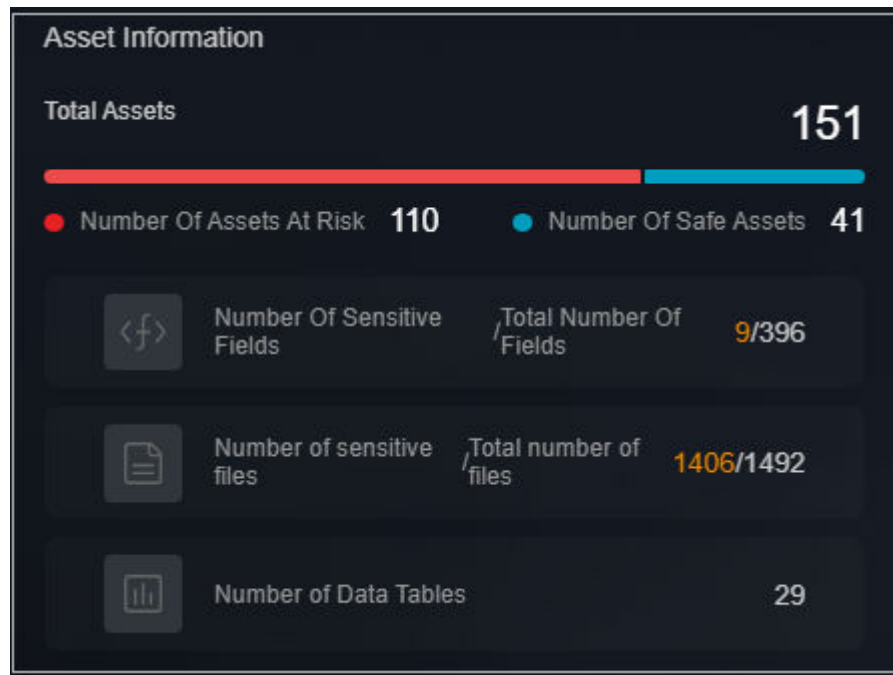
## Information

The total number of assets and the identified high-, medium, and low-risk assets are displayed, as shown in [Figure 7-5](#).

**Table 7-3** Asset information

Parameter	Source	Update Frequency	Description
Total assets	Sum of high-risk, medium-risk, and low-risk assets.	Real-time	-
Risky assets	Sum of high- and medium-risk assets.	Real-time	-
Secure assets	Number of low-risk assets.	Real-time	-
Sensitive fields/ Total fields	Sensitive data identification	Real-time	Total number of sensitive data fields/Total number of fields.
Sensitive files/ Total files	Sensitive data identification	Real-time	Total number of sensitive data files in OBS assets/ Total number of files.
Data tables	Total number of sensitive data tables.	Real-time	Total number of sensitive data tables.

**Figure 7-5** Asset information



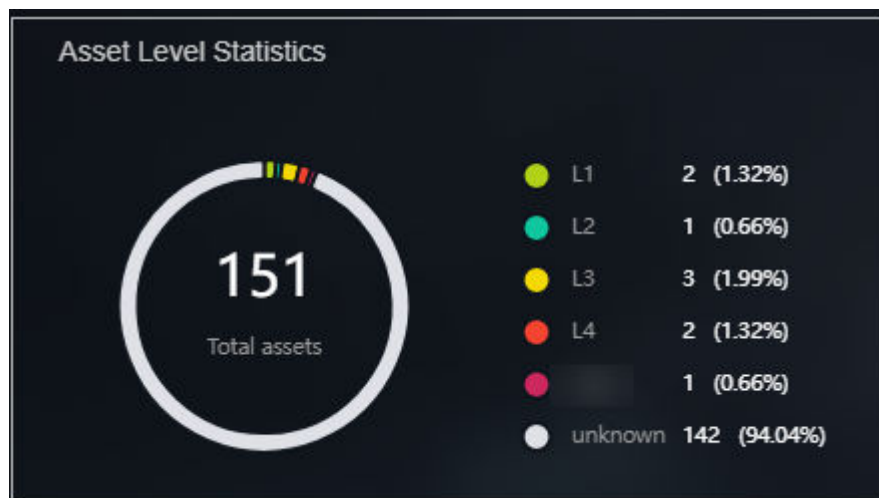
### Asset Statistics by Level

The total number of assets that have been categorized and leveled through sensitive data identification, and the number and proportion of assets at each level are displayed, as shown in [Figure 7-6](#).

**Table 7-4** Asset information

Parameter	Data Scope	Description
Total assets	Asset map	Total number of assets that are categorize and leveled using the sensitive data identification function.
Level	Sensitive data identification	Number of assets at each level and the proportion of each asset to the total assets.

**Figure 7-6** Asset statistics by level



### Top 5 Risky Assets with Highest Lost Scores

The top 5 assets with the highest lost scores are displayed. When you move the cursor to the bar chart, the asset name, asset type, data source, and score loss are displayed, as shown in [Figure 7-7](#).

**Table 7-5** Asset information

Parameter	Source	Description
Risky asset score loss	Asset map	The <b>asset name</b> , <b>asset type</b> , <b>data source</b> , and <b>score deduction</b> of a single asset are displayed based on the score loss rules in the asset scoring rules. The details about the score deduction rules are described on the console. For details, see <a href="#">Viewing Scoring Rules</a> .

**Figure 7-7** Top 5 Risky Assets with Highest Lost Scores



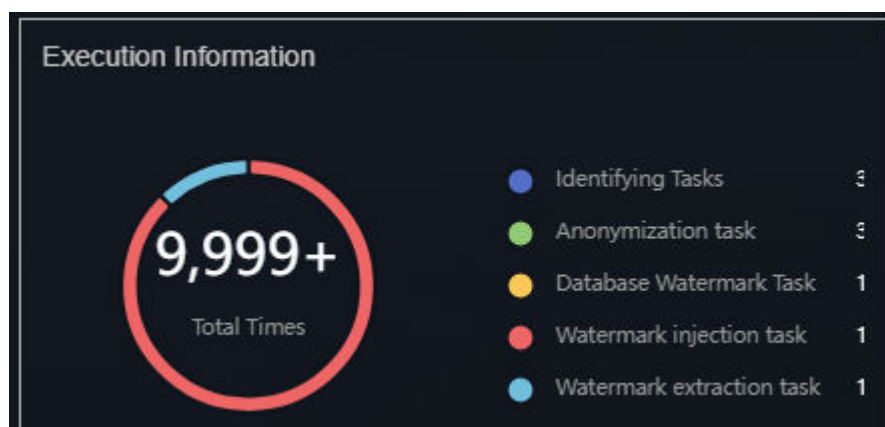
## Execution Information

The total number of executed tasks is displayed, including sensitive data identification, static data masking, and data watermarking tasks are displayed, as shown in [Figure 7-8](#).

**Table 7-6** Task execution information

Parameter	Source	Description
Total executions	Sensitive data identification, static data masking, and data watermarking	Total number of executed tasks.

**Figure 7-8** Task execution information



## Handling Statistics

- Alarm Handling Statistics



Displays the total number of alarms and the number of unhandled alarms from the **Alarm Management** page by time.

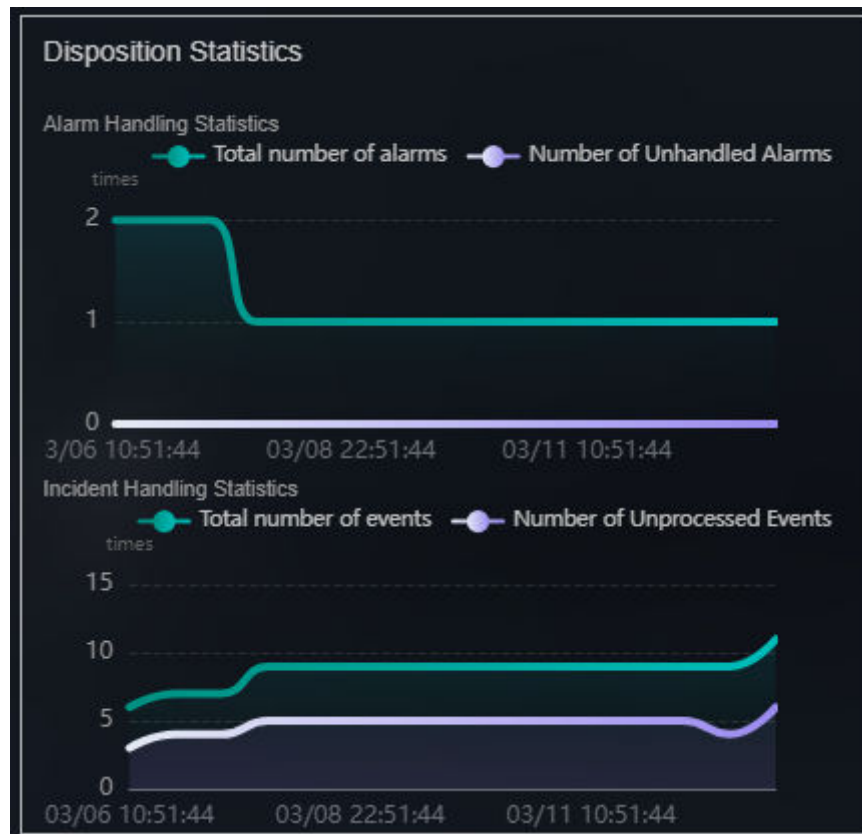
- Event Handling Statistics

Displays the total number of events and the number of unhandled events from the **Event Management** page by time.

**Table 7-7** Task execution information

Parameter	Source	Description
Total alarms	<b>Alarm Management</b> module	Total number of alarms in the alarm list on the <b>Alarm Management</b> page
Unhandled alarms	Alarm Management	Number of alarms whose status is <b>enabled</b> in the alarm list on the <b>Alarm Management</b> page
Total events	Event Management module	Total number of events in the event list on the <b>Event Management</b> page
Unhandled events	Event Management module	Number of events whose status is <b>enabled</b> and <b>blocked</b> in the alarm management list.

**Figure 7-9** Handling Statistics



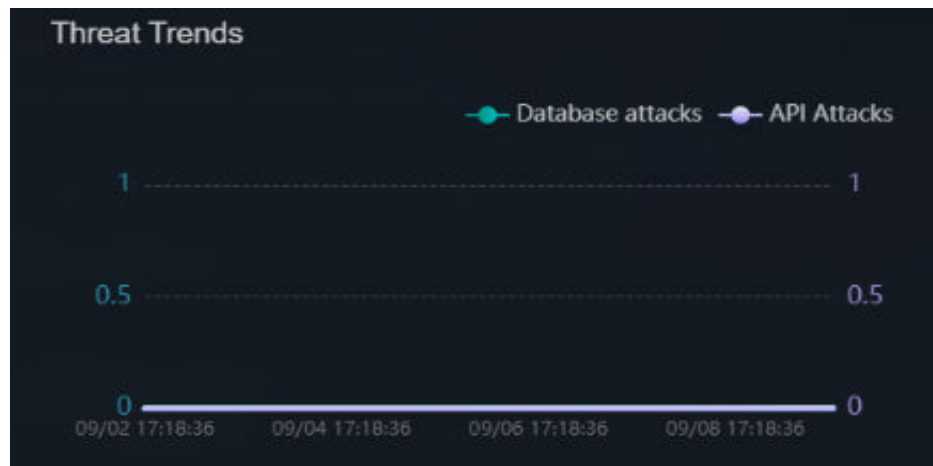
## Threat Trends

The number of database attacks and the number of API attacks are displayed by time, as shown in [Figure 7-10](#).

**Table 7-8** Task execution information

Parameter	Source	Description
Database attacks	<b>Alarm Management</b> module	Analyze the number of database attacks based on the alarms on the <b>Alarm Management</b> page.

**Figure 7-10** Threat Trends



## Top 5 Attack Targets

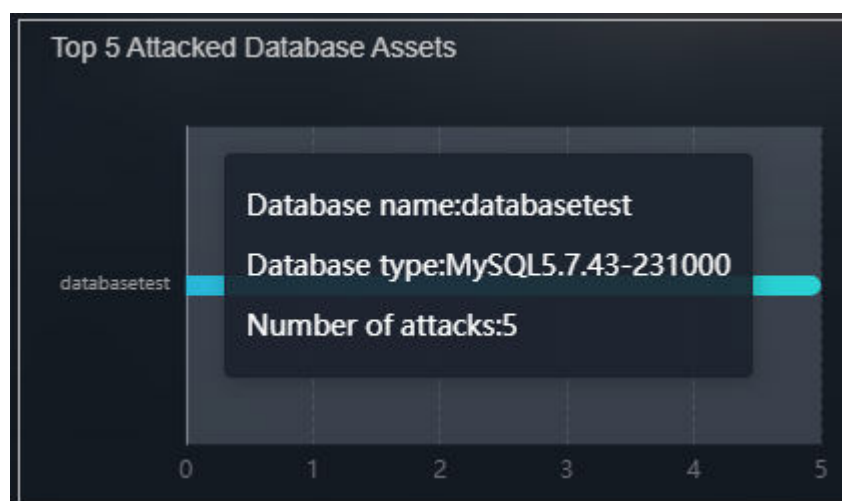
**Table 7-9** Top 5 attack targets

Parameter	Source	Description
Top 5 attacked database assets	<b>Alarm Management</b> module	Analyze and display top 5 attacked database assets based on alarms on the <b>Alarm Management</b> page.

### Top 5 Attacked Database Assets

The top 5 attacked database assets are displayed. When you move the cursor to the bar chart, the **Database**, **Database type**, and **Number of attacks** are displayed, as shown in [Figure 7-11](#).

**Figure 7-11** Top 5 attacked database assets





## 7.2 Event Management

DSC integrates with key security components, including Database Audit, and Cloud Bastion Host, enabling centralized event management and real-time event delivery to DSC. This allows users to promptly verify and handle events. You can also convert alarms on the **Alarm Management** page to events.

### Prerequisites

DBSS has been enabled and there are assets on it.

### Creating an Event

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Security Operations > Event Management**. The **Event Management** page is displayed.
- Step 5** Click **Create** in the upper left corner. The page for creating an event is displayed.
- Step 6** Set the event parameters based on [Table 7-10](#).

**Table 7-10** Event parameters



Parameter	Description
Event Name	The value can contain 4 to 255 characters, including letters, digits, hyphens (-), and underscores (_), and must start with a letter.
Type	Select an event type from the drop-down list box. <ul style="list-style-type: none"><li>● Databases<ul style="list-style-type: none"><li>- SQL Injection</li><li>- Risky operations</li></ul></li><li>● Application APIs<ul style="list-style-type: none"><li>- Unauthorized access</li><li>- Login security</li><li>- Interface security</li><li>- Service security</li><li>- Data security</li></ul></li></ul>

Parameter	Description
Event Level	Select an event level from the drop-down list box. <ul style="list-style-type: none"> <li>• Suggestion</li> <li>• Low</li> <li>• Medium</li> <li>• High</li> <li>• Critical</li> </ul>
Status	Select a status from the drop-down list box. <ul style="list-style-type: none"> <li>• Open</li> <li>• Blocked</li> <li>• Closed</li> </ul>
Module	Select a source function module from the drop-down list box. <ul style="list-style-type: none"> <li>• Database auditor</li> <li>• Cloud bastion host</li> <li>• Database encryption gateway</li> <li>• Database operation</li> <li>• API security gateway</li> </ul>
Instance	Select an event source instance from the drop-down list box.
Owner	Select an event handling owner from the drop-down list box.
Affected Assets (Optional)	Enter the information about the assets affected by the event.
Occurred On	Time when an event occurs for the first time.
Planned Closure Time	Time when an event is planned to be closed.
Recommended Handling Method (Optional)	Enter the recommended event handling method. A maximum of 1000 characters can be entered.
Verification Status	Select an event verification status from the drop-down list box. <ul style="list-style-type: none"> <li>• Unknown</li> <li>• Confirmed</li> <li>• False</li> </ul>
Description	Enter the event description.

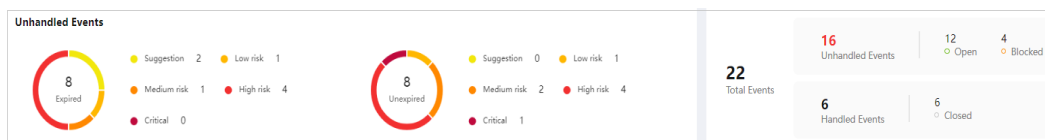
**Step 7** Click **OK**.

----End

## Viewing the Event Management List

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Security Operations > Event Management**. The **Event Management** page is displayed.
- Step 5** View the number of unhandled events and the total number of events.  
The doughnut chart displays the number of expired and unexpired events.

**Figure 7-12** Event handling statistics



- Step 6** View the alarm list. For details about the parameters, see [Table 7-11](#).

**Figure 7-13** Event parameters

Event Name/ID	Event Severity	Subcategory/Type	Source	Status	Affected Assets	Verification Status	Owner	Created	Occurred On	Planned Closure	Operation
3005	Low risk	Interface security Application APIs	API security gateway	Blocked	asda	Confirmed		Mar 14, 2024 10:25:2...	Feb 27, 2024 10:25:1...	Mar 29, 2024 10:25:2...	Edit Closed Delete
3004	Medium risk	Unauthorized access Application APIs	Database audit real-d...	Open	evuser	Unknown	sec_dsc_30454468...	Mar 14, 2024 09:26:1...	Mar 14, 2024 16:25:1...	...	Edit Closed Delete

**Table 7-11** Data risk event parameters

Parameter	Description
Event Name/ID	<ul style="list-style-type: none"> <li>● Name of an event. The event name should denote the content of the event. You can click the event name on the right of the event name to view the basic information, handling suggestions, and associated alarms of the event.</li> <li>● Click the event name to view the event details.</li> </ul>
Event Level	<p>There are five event levels:</p> <ul style="list-style-type: none"> <li>● Suggestion</li> <li>● Low</li> <li>● Medium</li> <li>● High</li> <li>● Critical</li> </ul>

Parameter	Description
Subcategory/Category	Event sources are classified into the following categories: <ul style="list-style-type: none"><li>• Database attacks</li><li>• API attacks</li></ul>
Source	Database Audit, Database Security Gateway, and API Security Gateway instances
Status	The status options are: <ul style="list-style-type: none"><li>• Open</li><li>• Blocked</li><li>• Closed</li></ul>
Affected Assets	Affected database assets or APIs.
Verification Status	Its value can be: <ul style="list-style-type: none"><li>• Unknown</li><li>• Confirmed</li><li>• False</li></ul>
Owner	Username.
Created	Event creation time
Occurred On	Time when an event occurs for the first time.
Planned Closure Time	Time when an event is planned to be closed.

----End

## Related Operations

- Close
  - Click **Close** in the Operation column of the alarm list to disable the alarm.
- Edit
  - Click **Edit** in the **Operation** column of the alarm list to edit the alarm.
- Delete
  - Click **Delete** in the **Operation** column of the alarm list to delete the alarm.



## 7.3 Alarm Management

When a system or service alarm is generated from the DBSS service, the alarm is pushed to the DSC in real time. Users can check and handle the alarm. Alarms are stored in the DSC for 30 days.

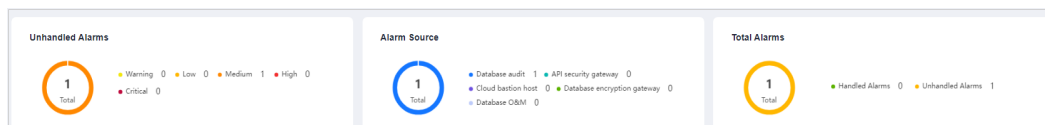
## Prerequisites

DBSS has been enabled and there are assets on it.

## Procedure

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Security Operations > Alarm Management**. The **Alarm Management** page is displayed.
- Step 5** You can view the unhandled alarms, alarm sources, and total number of alarms.

**Figure 7-14** Alarm doughnut chart



- Step 6** View the alarm list. For details about the parameters, see [Table 7-12](#).

**Table 7-12** Data risk alarm parameters

Parameter	Description
Alarm Name/ID	Indicates the name of the alarm source. An alarm should denote the content of the alarm. You can click an alarm name to view details about the alarm, including basic alarm information, handling suggestions, and attack information.
Alarm Level	There are 5 alarm severity levels: <ul style="list-style-type: none"> <li>● Suggestion</li> <li>● Low</li> <li>● Medium</li> <li>● High</li> <li>● Critical</li> </ul>
Subcategory/Category	Alarm source types are as follows: <ul style="list-style-type: none"> <li>● Database attacks</li> <li>● API attacks</li> </ul>
Source	Database Audit, Database Security Gateway, and API Security Gateway instances



Parameter	Description
Status	The status options are: <ul style="list-style-type: none"><li>• Open</li><li>• Blocked</li><li>• Closed</li></ul>
Affected Assets	Affected database assets or APIs.
Verification Status	Its value can be: <ul style="list-style-type: none"><li>• Unknown</li><li>• Confirmed</li><li>• False</li></ul>
Owner	Username.
Created	Time the alarm was created.
Occurred On	Time when an alarm occurs for the first time.

----End

## Related Operations

- Convert to event.
  - a. Click **Convert to Event** in the **Operation** column of the alarm list. The **Convert to Event** page is displayed.
  - b. Enter the parameters, as shown in [Table 7-13](#).

**Table 7-13** Parameters for converting an alarm to an event

Parameter	Description
Event Name	Enter the event name.
Event Type	Select an event type from the drop-down list box.
Planned Closure Time	Select the time when the event is closed.

- c. Click **OK** to convert an alarm to an event. You can view the converted event on the **Event Management** page.
- Close  
Click **Close** in the Operation column of the alarm list to disable the alarm.
  - Edit  
Click **More > Edit** in the **Operation** column of the alarm list to edit the alarm.
  - Delete  
Click **More > Delete** in the **Operation** column of the alarm list to delete the alarm.

## 7.4 OBS Usage Audit

DSC detects OBS buckets based on sensitive data identification rules and monitors identified sensitive data. After abnormal operations of the sensitive data are detected, DSC allows you to view the monitoring result and handle the abnormal events as required.


### Prerequisites

- An abnormal event has been detected and displayed on the page.
- The OBS audit function has been enabled in the asset center.
- Sensitive data of OBS assets has been identified.

### Procedure

**Step 1** Log in to the management console.



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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Data Security Operation > OBS Usage Audit**. The **OBS Usage Audit** page is displayed. For details about the parameters, see [Table 7-14](#).

In the upper right corner of the list, select a time range, set the time period, and select an event type and status to query the abnormal behaviors you want to view.

**Figure 7-15** Data usage audit parameter

User ID	Event Type 	Event Name	Alarm Time	Status 	Operation
0c3039177d80d36e0fcd009a74bd880	OPERATION	DELETE OBJECT	2024/03/13 10:18:30 GMT+08:00	Unhandled	<a href="#">Details</a> <a href="#">Handle</a>
0c3039177d80d36e0fcd009a74bd880	ACCESS	READ OBJECT	2024/03/13 10:17:48 GMT+08:00	Unhandled	<a href="#">Details</a> <a href="#">Handle</a>

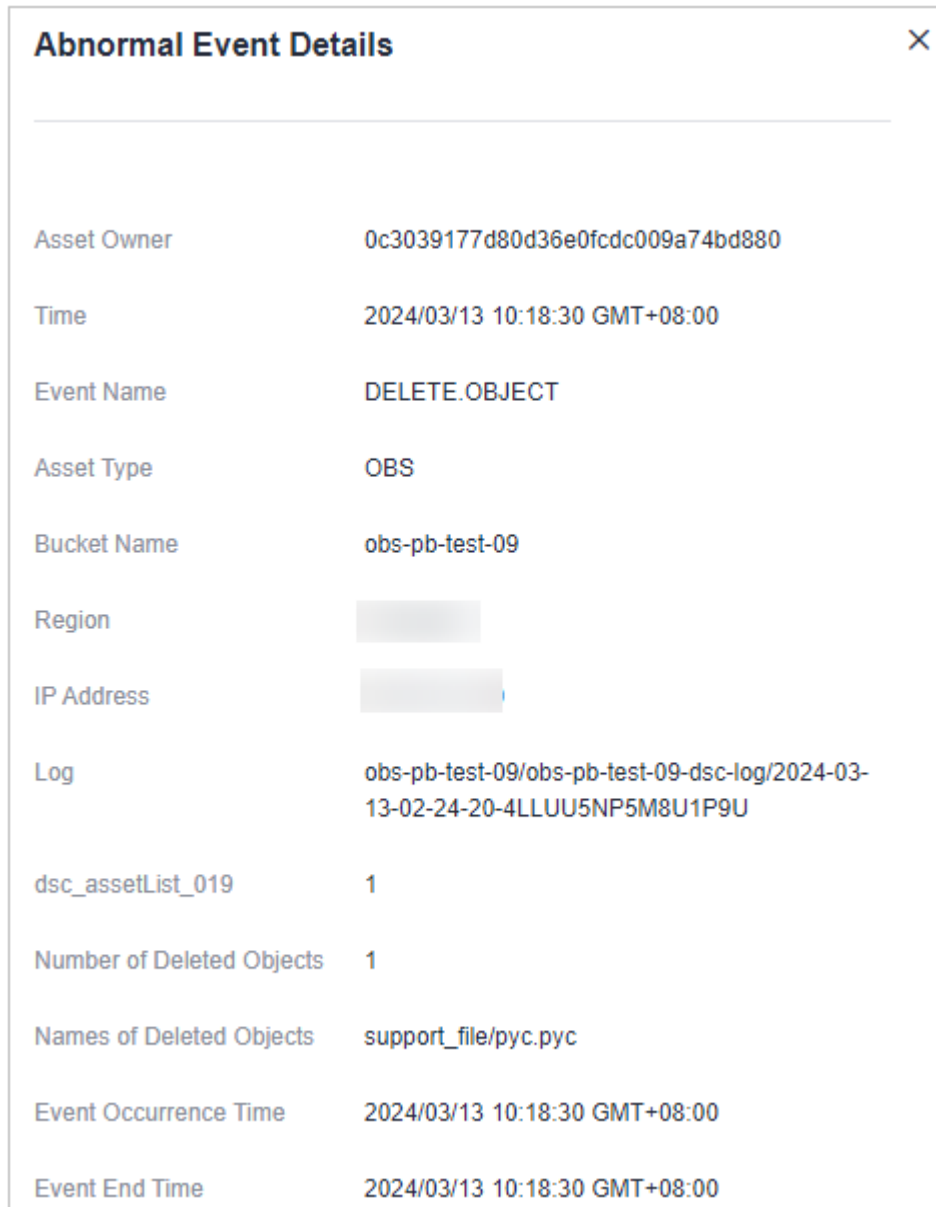
**Table 7-14** Parameters of detected risky behaviors

Parameter	Description
User ID	ID of a resource owner

Parameter	Description
Event Type	DSC classifies abnormal events into the following three types: <ul style="list-style-type: none"><li>● Unauthorized data access<ul style="list-style-type: none"><li>- Access sensitive files without granted permissions.</li><li>- Download sensitive files.</li></ul></li><li>● Abnormal data operations<ul style="list-style-type: none"><li>- Update sensitive files.</li><li>- Append data to sensitive files.</li><li>- Delete sensitive files.</li><li>- Copy sensitive files.</li></ul></li><li>● Abnormal data management<ul style="list-style-type: none"><li>- When a bucket is added, the system detects that the bucket is a public read or a public read/write bucket.</li><li>- When a bucket is added, the system detects that the access/ACL access permissions of a private bucket are granted for anonymous users or registered user groups.</li><li>- The policy of a bucket containing sensitive files is changed or deleted.</li><li>- The ACL of a bucket containing sensitive files is changed or deleted.</li><li>- The cross-region replication configuration of a bucket containing sensitive files is modified or deleted.</li><li>- The ACL of a sensitive file is modified or deleted.</li></ul></li></ul>
Event Name	Event that causes an exception
Alarm Time	Time when an exception occurs
Status	Status description is as follows: <ul style="list-style-type: none"><li>● <b>Unhandled</b>: indicates that an abnormal event is not handled.</li><li>● <b>Confirmed Violation</b>: indicates that a handled abnormal event causes an exception.</li><li>● <b>Confirmed Non-violation</b>: indicates that a handled abnormal event does not cause any exceptions.</li></ul>

**Step 5** Click **View Details** in the **Operation** column of an abnormal event to view details about the event.

Figure 7-16 Abnormal event details



The image shows a dialog box titled "Abnormal Event Details" with a close button (X) in the top right corner. The dialog contains a list of event details in a key-value format. The details are as follows:

Asset Owner	0c3039177d80d36e0fcdc009a74bd880
Time	2024/03/13 10:18:30 GMT+08:00
Event Name	DELETE.OBJECT
Asset Type	OBS
Bucket Name	obs-pb-test-09
Region	[REDACTED]
IP Address	[REDACTED]
Log	obs-pb-test-09/obs-pb-test-09-dsc-log/2024-03-13-02-24-20-4LLUU5NP5M8U1P9U
dsc_assetList_019	1
Number of Deleted Objects	1
Names of Deleted Objects	support_file/pyc.pyc
Event Occurrence Time	2024/03/13 10:18:30 GMT+08:00
Event End Time	2024/03/13 10:18:30 GMT+08:00

**Step 6** In the **Operation** column of the abnormal event, click **Handle** to handle the event. The handling method is as follows:

- The event is confirmed as a violation.  
Should a policy violation occur and remain unhandled, DSC will persistently alert the event.
- The event is deemed normal and requires no action.  
It can be configured to be ignored. Once set, DSC will cease alerts for this event, and it will not appear in the list of abnormal events.

----End

## 7.5 Watermarks

## 7.5.1 Extracting Watermarks from Databases

### Prerequisites

- Access to cloud assets has been authorized. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- An RDS or GaussDB(DWS) database has been authorized. For details, see [Authorizing Access to Database Assets](#).
- An MRS database has been authorized. For details, see [Authorizing Access to Big Data Assets](#).
- You have configured the GaussDB(DWS) and MRS\_Hive permissions. For details, see [\(Optional\) Configuring GaussDB\(DWS\) and MRS Hive](#).


### Constraints

- The source file must be in CSV format and cannot be larger than 20 MB.
- The table may contain more than 1,500 rows of data.
- The CSV file content is encoded in UTF-8 mode. Ensure that the data is complete and correct.

### Creating a Task

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Data Security Operations > Watermark Tracing**. The **Database Watermark Extraction** tab page is displayed.

**Step 5** Click **Create Task**. In the displayed dialog box, set parameters based on [Table 7-15](#).

**Figure 7-17** Creating an extraction task

**Table 7-15** Creating a watermark extraction task



Parameter	Description
Task Name	Enter a task name.
Source Files	The source file must be in CSV format and cannot be larger than 20 MB. The table may contain more than 1,500 rows of data. The CSV file content is encoded in UTF-8 mode. Ensure that the data is complete and correct.
Extraction Mode	Select a watermark extraction mode from the drop-down list box. For lossy column embedding and lossless column embedding, extract watermarks by column. For lossless line embedding, extract watermarks by row.
Delimiter	Delimiters in a file. For example: comma (,)

**Step 6** Click **OK**.

----End



## Viewing Results

**Step 1** Log in to the management console.

- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Security Operations > Watermark Tracing**. The **Database Watermark Extraction** tab page is displayed.
- Step 5** Locate a task and click **View Result** in the **Operation** column.
- End

## Deleting a Watermark Extraction Task

Watermark extraction tasks that are being executed cannot be deleted.

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Security Operations > Watermark Tracing**. The **Database Watermark Extraction** tab page is displayed.
- Step 5** Click **Delete** in the **Operation** column of the target task. You can also select multiple tasks and click **Batch Delete** to delete them.

### NOTE

The deletion cannot be undone.

----End

## 7.5.2 Extracting Watermarks from an OBS Bucket File

The content of invisible watermarks cannot be seen and needs to be extracted using tools. This section describes how to extract watermarks from a PDF, PPT, Word, or Excel file stored on the cloud (OBS buckets).

### Prerequisites



- OBS asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- OBS has been enabled and used.
- The file format is PDF, PPT, Word, or Excel.

### Constraints

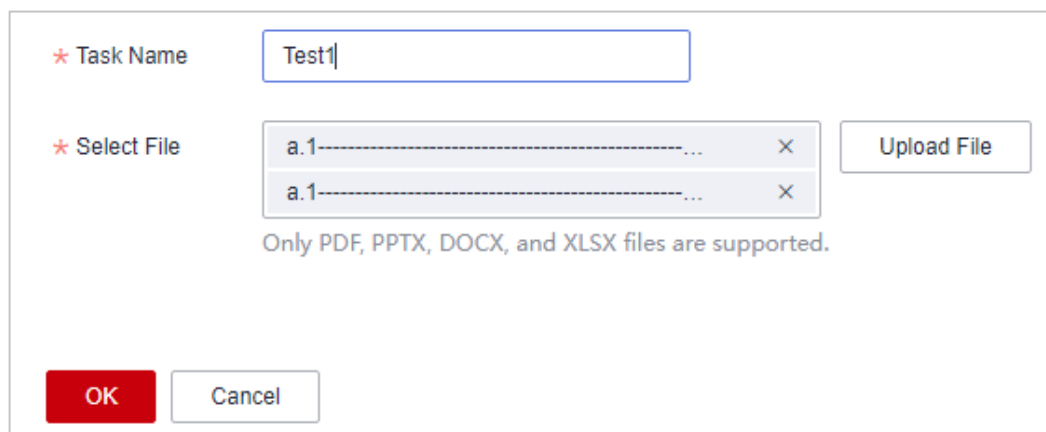
- This section describes how to extract invisible watermarks from PDF, PPT, Word, or Excel documents.
- The maximum size of a PDF or Word file is 50 MB.
- The maximum size of an Excel file is 70 MB.

- The maximum size of a PPT file is 20 MB.

## Creating an OBS Bucket File Watermark Extraction Task

- Step 1** Log in to the management console.
- Step 2** Click  in the upper left corner and select a region or project.
- Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.
- Step 4** In the navigation tree on the left, choose **Data Security Operations > Watermark Tracing**. The **Database Watermark Extraction** tab page is displayed.
- Step 5** Click the **OBS File Watermark Extraction** tab.
- Step 6** Click **Create Task** in the upper left corner. The **Create Task** page is displayed.

**Figure 7-18** Creating a watermark extraction task



\* Task Name

\* Select File

a.1-----... x

a.1-----... x

Upload File

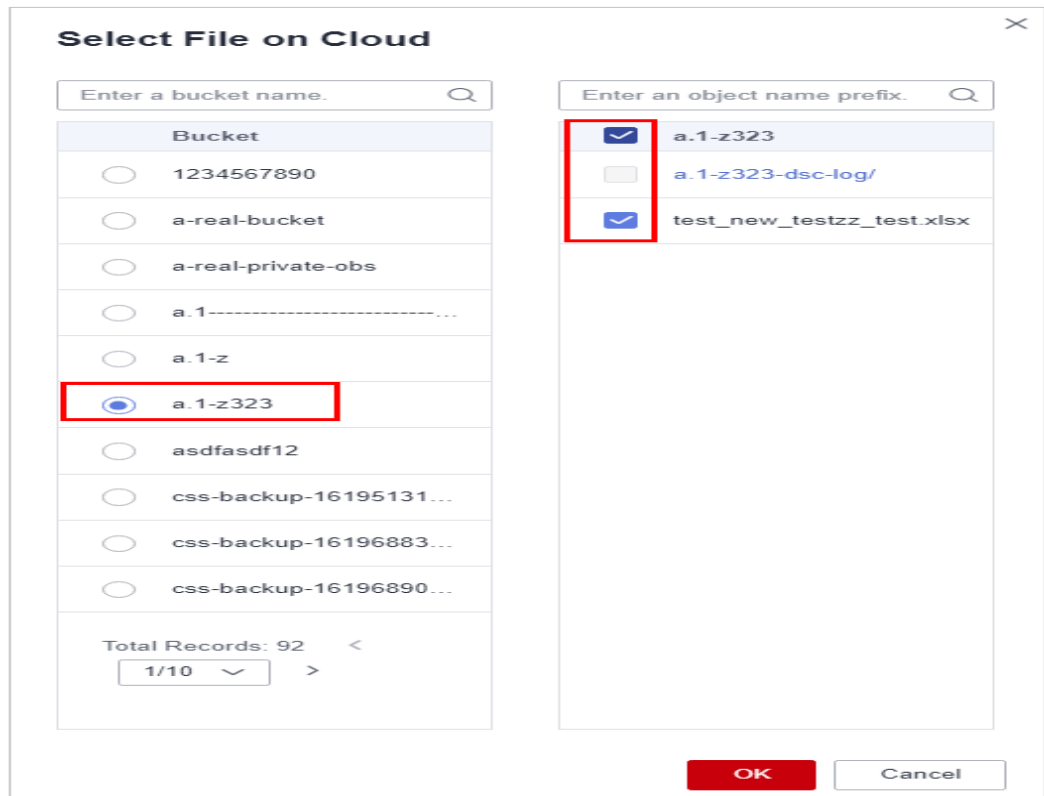
Only PDF, PPTX, DOCX, and XLSX files are supported.

OK Cancel


- Step 7** Click **Add File** to select the file from which you want to extract watermarks. You can select multiple OBS bucket files.



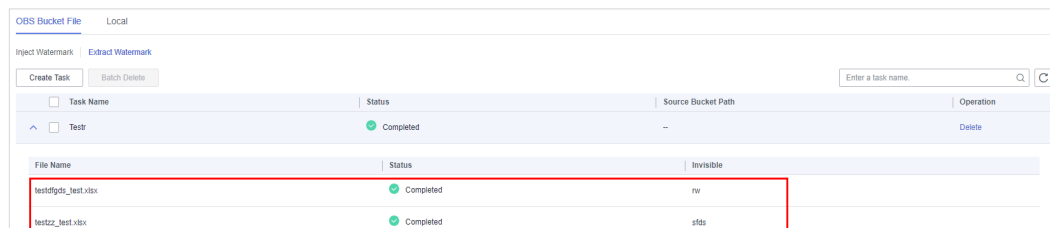
**Figure 7-19** Selecting a file



**Step 8** Click **OK**. The watermark extraction task is created.


**Step 9** Click  next to the target task name to view the extracted invisible watermark content.


**Figure 7-20** Invisible watermark



----End

## Related Operations

Click  next to the target watermark injection task name to view the status of the watermark extraction task.

- **Running:** You can view the progress of the watermark extraction task.
- **Completed:** The watermark content is displayed in the **Invisible Watermarks** column. If there are no invisible watermarks, -- is displayed.
- **Failed:** The watermark extraction task fails to be executed. You can move the cursor to  to view the failure cause.

## 7.5.3 Extracting Watermarks from a Local File

The content of invisible watermarks cannot be seen and needs to be extracted using tools. This section describes how to extract watermarks from a local PDF, PPT, Word, or Excel file.

### Prerequisites

- OBS asset access permissions are granted. For details, see [Allowing or Disallowing Access to Cloud Assets](#).
- OBS has been enabled and used.
- The file format is PDF, PPT, Word, or Excel.


### Constraints

- This section describes how to extract invisible watermarks from PDF, PPT, Word, or Excel documents.
- The maximum size of a PDF or Word file is 50 MB.
- The maximum size of an Excel file is 70 MB.
- The maximum size of a PPT file is 20 MB.

### Extracting Watermarks from a Local File

**Step 1** Log in to the management console.

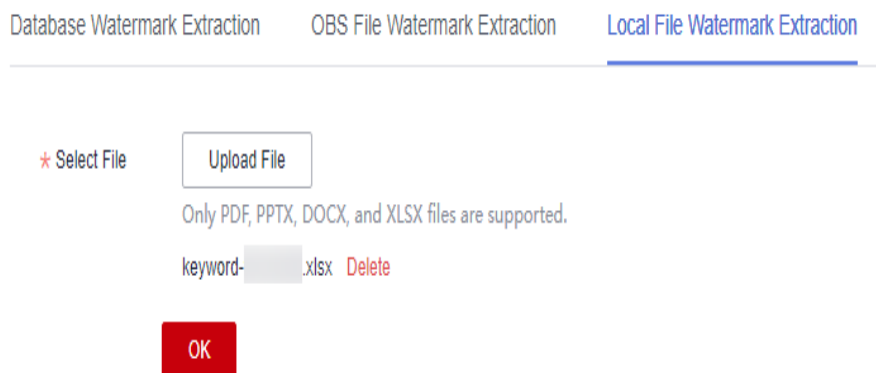
**Step 2** Click  in the upper left corner and select a region or project.

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

**Step 4** In the navigation tree on the left, choose **Data Security Operations > Watermark Tracing**. The **Database Watermark Extraction** tab page is displayed.

**Step 5** Click the **Local File Watermark Extraction** tab.

**Figure 7-21** Extracting watermarks



**Step 6** Click **Upload File** to upload the local file from which you want to extract invisible watermarks.


 **NOTE**


Only PDF, PPT, Word, and Excel files are supported.

**Step 7** After the file is uploaded, click **OK**. The invisible watermark content is displayed in the dialog box.

----End

## Related Operations

Click  next to the target watermark injection task name to view the status of the watermark extraction task.

- **Running:** You can view the progress of the watermark extraction task.
- **Completed:** The watermark content is displayed in the **Invisible Watermarks** column. If there are no invisible watermarks, -- is displayed.
- **Failed:** The watermark extraction task fails to be executed. You can move the cursor to  to view the failure cause.

# 8 Alarm Notifications

DSC sends notifications through the notification method configured by users when sensitive data identification is completed or abnormal events are detected.

## Prerequisites

The SMN service has been enabled.


## Constraints

- Before using the alarm notification function, ensure that SMN has been enabled. The SMN service is a paid service. For price details, see [SMN Pricing Details](#).
- Before setting alarm notifications, you are advised to create a **message topic** in **Simple Message Notification** as the administrator.

## Procedure

**Step 1** Log in to the management console.

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

**Step 3** In the navigation tree on the left, click . Choose **Security & Compliance > Data Security Center**.

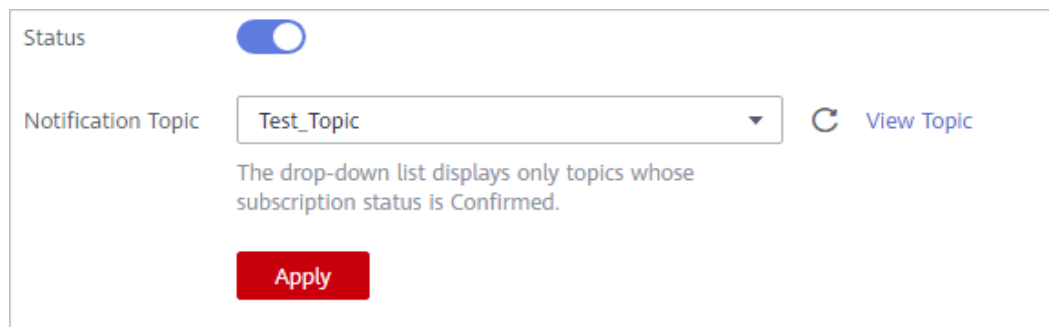
**Step 4** In the navigation pane, choose **Alarm Notifications**.

**Step 5** Configure alarm notifications. [Table 8-1](#) describes the parameters.




### NOTE

The alarm notification is the default notification. If no topics have been, the default notification is used for data usage audit alarms.

**Figure 8-1** Configuring alarm notifications



**Table 8-1** Alarm notification parameters

Parameter	Description	Example Value
Status	Whether notification is enabled. <ul style="list-style-type: none"> <li>: enabled.</li> <li>: disabled.</li> </ul>	
Notification Topic	Select an existing topic from the drop-down list or click <b>View Topic</b> to create a topic for receiving alarm notifications. Click <b>View Topic</b> and perform the following steps to create a topic: <ol style="list-style-type: none"> <li>Create a topic. For details, see <a href="#">Creating a Topic</a>.</li> <li>You can add one or more subscriptions to a topic by configuring the phone number, email address, function, platform application endpoint, DMS endpoint, or HTTP/HTTPS endpoint for receiving alarm notifications. For details, see <a href="#">Adding a Subscription</a>.</li> <li>Confirm the subscription. After the subscription is added, confirm the subscription.</li> </ol> For details about topics and subscriptions, see <i>Simple Message Notification User Guide</i> .	N/A

**Step 6** Click **Apply**.

----End

# 9 Permissions Management

## 9.1 Creating a User and Assigning DSC Permissions

This section describes IAM's fine-grained permissions management for your DSC resources. With [IAM](#), you can:

- Create IAM users for employees based on the organizational structure of your enterprise. Each IAM user has their own security credentials, providing access to DSC resources.
- Grant only the permissions required for users to perform a task.
- Entrust a Huawei Cloud account or cloud service to perform professional and efficient O&M on your DSC resources.

If your Huawei Cloud account does not require individual IAM users, skip this section.

This section describes the procedure for granting permissions (see [Figure 9-1](#)).

### Prerequisites

Learn about the permissions supported by DSC in [Table 9-1](#) and choose policies or roles based on your requirements.

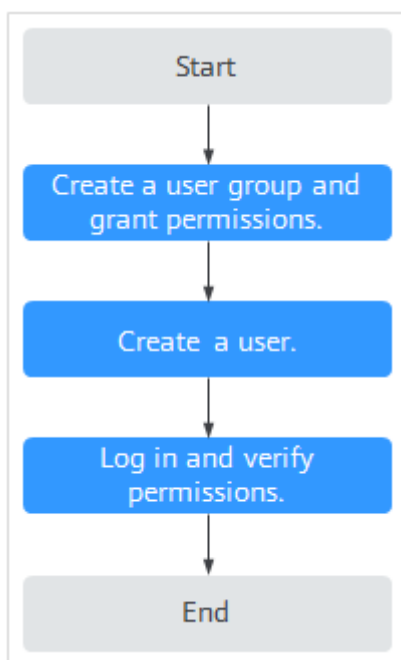
**Table 9-1** DSC system permissions

Policy	Description	Type	Dependency
DSC DashboardReadOnlyAccess	Read-only permissions for the overview page of DSC	System-defined policy	None

Policy	Description	Type	Dependency
DSC FullAccess	All permissions for DSC	System-defined policy	To purchase a yearly/monthly RDS DB instance, you need to configure the following actions: bss:order:update bss:order:pay
DSC ReadOnlyAccess	Read-only permissions for Data Security Center	System-defined policy	None

## Process Flow

**Figure 9-1** Process for granting permissions



1. **Create a user group and assign permissions.**  
Create a user group on the IAM console, and assign the **DSC FullAccess** permissions to the group.
2. **Creating an IAM User.**  
Create a user on the IAM console and add it to the group created in **1**.
3. **Logging In as an IAM User** and verify permissions.  
Log in to the DSC console using the created user and verify that the user has administrator permissions for DSC.  
Assume you are granted only the **DSC FullAccess** permission. Choose any other service in the **Service List**. If a message appears indicating insufficient

permissions to access the service, the permission setting has already taken effect.

## 9.2 DSC Custom Policies

Custom policies can be created to supplement the system-defined policies of DSC.

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Edit JSON policies from scratch or based on an existing policy.

For details, see [Creating a Custom Policy](#). The following section contains examples of common DSC custom policies.

### Example Custom Policies

- Example 1: Allowing a user to query the big data assets

```
{
  "Version": "1.1",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "dsc:bigdataAsset:list"
      ]
    }
  ]
}
```

- Example 2: Disallowing a user to query the OBS assets

A deny policy must be used together with other policies. If the permissions assigned to a user contain both "Allow" and "Deny", the "Deny" permissions take precedence over the "Allow" permissions.

The following method can be used if you need to assign permissions of the **DSC FullAccess** policy to a user but also forbid the user from querying the OBS asset list (`dsc:obsAsset:list`). Create a custom policy with the same action for denying querying the OBS asset list, and assign both policies to the group the user belongs to. Then, the user can perform all operations on DSC except querying the OBS asset list. The following is an example policy for denying querying OBS asset list.

```
{
  "Version": "1.1",
  "Statement": [
    {
      "Effect": "Deny",
      "Action": [
        "dsc:obsAsset:list"
      ]
    },
  ]
}
```

- Multi-action policy

A custom policy can contain the actions of multiple services that are of the project-level type. The following is an example policy containing actions of multiple services:



```
{
  "Version": "1.1",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "dsc:obsAsset:list",
        "dsc:scanRule:list"
      ]
    },
    {
      "Effect": "Allow",
      "Action": [
        "hss:hosts:switchVersion",
        "hss:hosts:manualDetect",
        "hss:manualDetectStatus:get"
      ]
    }
  ]
}
```

## 9.3 DSC Permissions and Supported Actions

This section describes how to use IAM for fine-grained DSC permissions management. If your Huawei Cloud account does not need individual IAM users, skip over this section.

By default, new IAM users do not have any permissions. You need to add a user to one or more groups, and attach permissions policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

You can grant users permissions by using [roles](#) and [policies](#). Roles are provided by IAM to define service-based permissions depending on user's job responsibilities. Policies are a type of fine-grained authorization mechanism that defines permissions required to perform operations on specific cloud resources under certain conditions

### Supported Actions

DSC provides system-defined policies that can be directly used in IAM. You can also create custom policies and use them to supplement system-defined policies, implementing more refined access control.

- Permissions: Statements in a policy that allow or deny certain operations
- Actions: Added to a custom policy to control permissions for specific operations

Permission	Action
Querying the OBS asset list	dsc:obsAsset:list
Updating identification rules	scanRule:update
Adding big data assets	dsc:bigdataAsset:create
Viewing the identification rule list	dsc:scanRule:list

Permission	Action
Adding OBS assets	dsc:obsAsset:create
Querying the RDS DB instance list	dsc:rds:list
Deleting databases	dsc:databaseAsset:delete
Adding identification rules	dsc:scanRule:create
Deleting identification tasks	dsc:scanTask:delete
Querying DSC permissions	dsc:authorization:get
Querying RDS database list	dsc:rdsDatabase:list
Modifying identification tasks	dsc:scanTask:update
Querying the Cloud Search Service (CSS) list	dsc:css:list
Creating identification tasks	dsc:scanTask:create
Granting operation permissions to DSC users	dsc:authorization:grant
Querying the big data asset list	dsc:bigdataAsset:list
Querying the identification task list	dsc:scanTask:list
Adding databases	dsc:databaseAsset:create
Deleting identification tasks	dsc:scanRule:delete
Querying the database list	dsc:databaseAsset:list
Deleting OBS assets	dsc:obsAsset:delete
Deleting big data assets	dsc:bigdataAsset:delete
Operating DSC common resources	dsc:common:operate
Querying DSC common resources	dsc:common:list

# 10 Key DSC Operations

## 10.1 Operations Recorded by CTS

Cloud Trace Service (CTS) provides you with DSC operation records. After enabling CTS, you can view all generated traces to review and audit performed DSC operations. For details, see *Cloud Trace Service User Guide*.

**Table 10-1** lists DSC operations recorded by CTS.

**Table 10-1** DSC operations supported by CTS

Operation	Resource Type	Trace Name
Assign or revoke permissions for DSC	dscGrant	grantOrRevokeTodsc
Add an OBS bucket	dscObsAsset	addBuckets
Delete an OBS bucket	dscObsAsset	deleteBucket
Add a database	dscDatabaseAsset	addDatabase
Modify a database	dscDatabaseAsset	updateDatabase
Delete a database	dscDatabaseAsset	deleteDatabase
Add a big data source	dscBigdataAsset	addBigdata
Modify a big data source	dscBigdataAsset	updateBigdata
Delete a big data source	dscBigdataAsset	deleteBigdata

Operation	Resource Type	Trace Name
Update the object name	dscAsset	updateAssetName
Download a template for batch import	dscBatchImportTemplate	downloadBatchImportTemplate
Add databases in batches	dscAsset	batchAddDatabase
Add assets in batches	dscAsset	batchAddAssets
Display abnormal events	dscExceptionEvent	listExceptionEventInfo
Obtain the abnormal event details	dscExceptionEvent	getExceptionEventDetail
Add alarm configurations	dscAlarmConfig	addAlarmConfig
Change alarm configurations	dscAlarmConfig	updateAlarmConfig
Download a report	dscReport	downloadReport
Delete a report	dscReport	deleteReport
Add a scan rule	dscRule	addRule
Modify a scan rule	dscRule	editRule
Delete a scan rule	dscRule	deleteRule
Add a scan rule group	dscRuleGroup	addRuleGroup
Modify a scan rule group	dscRuleGroup	editRuleGroup
Delete a scan rule group	dscRuleGroup	deleteRuleGroup
Add a scan task	dscScanTask	addScanJob
Modify a scan task	dscScanTask	updateScanJob
Delete a scan subtask	dscScanTask	deleteScanTask
Delete a scan task	dscScanTask	deleteScanJob

Operation	Resource Type	Trace Name
Start a scan task	dscScanTask	startJob
Stop a scan task	dscScanTask	stopJob
Start a scan subtask	dscScanTask	startTask
Stop a scan subtask	dscScanTask	stopTask
Enable/disable data masking for Elasticsearch	dscBigDataMaskSwitch	switchBigDataMaskStatus
Obtain the Elasticsearch field	dscBigDataMetaData	getESField
Add an Elasticsearch data masking template	dscBigDataMaskTemplate	addBigDataTemplate
Modify an Elasticsearch data masking template	dscBigDataMaskTemplate	editBigDataTemplate
Delete an Elasticsearch data masking template	dscBigDataMaskTemplate	deleteBigDataTemplate
Query the Elasticsearch data masking template list	dscBigDataMaskTemplate	showBigDataTemplates
Enable or disable an Elasticsearch data masking template	dscBigDataMaskTemplate	operateBigDataTemplate
Switch the status of an Elasticsearch data masking template	dscBigDataMaskTemplate	switchBigDataTemplate
Enable or disable data masking for databases	dscDBMaskSwitch	switchDBMaskStatus
Obtain the database fields	dscDBMetaData	getColumn
Add a database masking template	dscDBMaskTemplate	addDBTemplate

Operation	Resource Type	Trace Name
Modify a database masking template	dscDBMaskTemplate	editDBTemplate
Delete a database masking template	dscDBMaskTemplate	deleteDBTemplate
Query the database masking template list	dscDBMaskTemplate	showDBTemplates
Start or stop a database data masking template	dscDBMaskTemplate	operateDBTemplate
Switch the status of a database data masking template	dscDBMaskTemplate	switchDBTemplate
Add a masking algorithm	dscMaskAlgorithm	addMaskAlgorithm
Edit a masking algorithm	dscMaskAlgorithm	editMaskAlgorithm
Delete a masking algorithm	dscMaskAlgorithm	deleteMaskAlgorithm
Test a masking algorithm	dscMaskAlgorithm	testMaskAlgorithm
Obtain the mapping between fields and masking algorithms	dscMaskAlgorithm	getFieldAlgorithms
Add encryption algorithm configurations	dscEncryptMaskConfig	addEncryptConfig
Modify encryption algorithm configurations	dscEncryptMaskConfig	editEncryptConfig
Delete encryption algorithm configurations	dscEncryptMaskConfig	deleteEncryptConfig