Data Replication Service User Guide-Huawei Cloud

Issue 01

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HUAWEI

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Contents

1 Verification Tasks

1.1 Creating a Verification Task

A verification task is used to check consistency between selected objects and data in the source and destination databases.

Supported Database Types

The following table lists the source database and destination database types supported by DRS in data verification.

Database Permissions

Table 1-1 Database permissions

Database	Required Permission
MySQL/RDS for MySQL	SELECT
TaurusDB	SELECT
DDM	SELECT
TiDB	SELECT
MariaDB	SELECT
PostgresSQL/RDS for PostgreSQL	CONNECT permission on databases, USAGE permission on schemas, SELECT permission on tables, and SELECT permission on sequences
Oracle	CREATE SESSION and SELECT ANY DICTIONARY permissions; SELECT permission on a single table

Database	Required Permission
GaussDB Centralized	Log in to a Postgres database as the **root** user or other database users with the sysadmin role. Grant the following permissions to these users: • Database-level permission: CONNECT permission on databases • SCHEMA-level permission: USAGE permission on schemas • Table-level permission: SELECT permission on all tables in schemas
GaussDB Distributed	Log in to a Postgres database as the **root** user or other database users with the sysadmin role. Grant the following permissions to these users: • Database-level permission: CONNECT permission on databases • SCHEMA-level permission: USAGE permission on schemas • Table-level permission: SELECT permission on all tables in schemas
MongoDB/DDS/AWS DocumentDB	Replica set: The source database user must have the readAnyDatabase permission on the admin database and the read permission on the local database. Single node: The source database user must have the readAnyDatabase permission on the admin database and the read permission on the local database.
Microsoft SQL Server	Sysadmin permission; db_datareader or db_owner permission on a database to be synchronized
DB2 for LUW	The user must have the CONNECT and DATAACCESS permissions. If there is the DB2SECURITYLABEL data in the table structure of the source database, ensure that the user has the read permission on all data in the table.
CSS/ES	The user must have the READ permission.
Cassandra	The user must have the following minimum permissions: SELECT permission on system catalogs **system_auth.roles** and **system_auth.role_permissions** and SELECT permission on the tables to be synchronized.

Procedure

This section describes how to create a verification task from a MySQL database to an RDS for MySQL database. To configure tasks of other DB engines, you can refer to the following procedures.

Step 1 On the **Data Verification Management** page, click **Create Verification Task**.

Step 2 On the **Create Verification Instance** page, select a region and project, specify the task name, description, and the verification instance details, and click **Create Now**.

- Task information

Figure 1-1 Verification task information

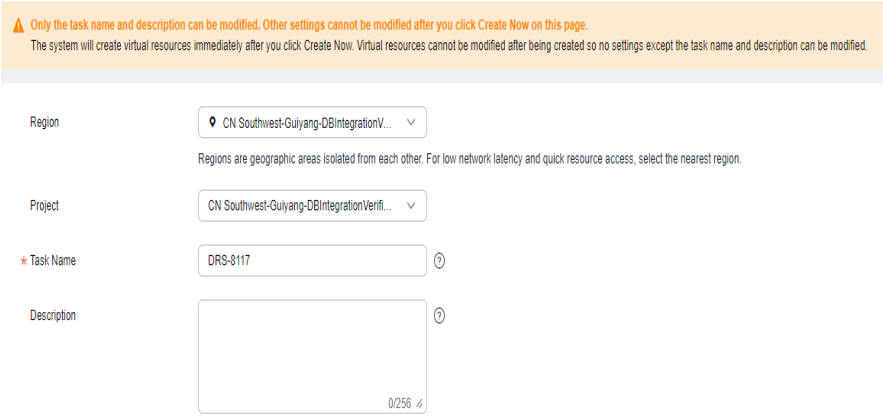


Table 1-2 Task information

Parameter	Description
Region	The region where the replication instance is deployed. You can change the region.
Task Name	The task name must start with a letter and consist of 4 to 50 characters. It can contain only letters, digits, hyphens (-), and underscores (_).
Description	The description can contain up to 256 characters and cannot contain special characters !=<>&'\"

- Verification instance information

Figure 1-2 Verification Instance Information

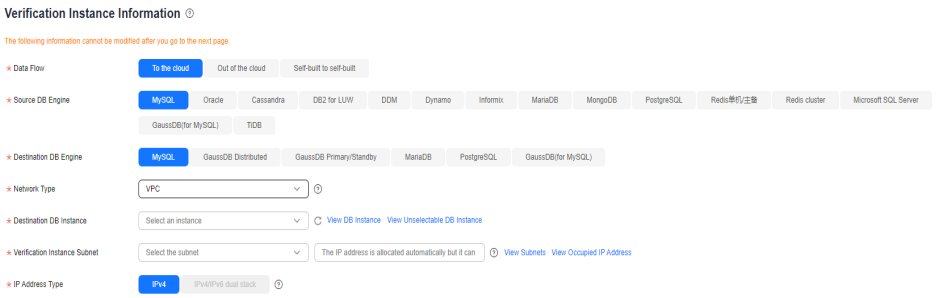


Table 1-3 Verification instance information

Parameter	Description
Data Flow	Select **To the cloud**. The destination database is a database in the current cloud.
Source DB Engine	Select **MySQL**.
Destination DB Engine	Select **MySQL**.
Network Type	**Public network** is used as an example. Available options: **Public network**, **VPC**, **VPN or Direct Connect** – **VPC** is suitable for data verification between cloud databases of the same account in the same region and VPC. – **Public network** is suitable for data verification between on-premises or external cloud databases and the destination database bound with an EIP. – **VPN or Direct Connect** is suitable for data verification between on-premises databases and cloud databases, between cloud databases of different accounts in the same region, or between cloud databases across regions using a VPN, Direct Connect, Cloud Connect, VPCEP, or a VPC peering connection.
Destination DB Instance	The RDS DB instance you created. **NOTE** – The destination DB instance cannot be a read replica. – The source and destination DB instances can be the same DB instance.
Verification Instance Subnet	Select the subnet where the verification instance is located. You can also click **View Subnets** to go to the network console to view the subnet where the instance resides. By default, the DRS instance and the destination DB instance are in the same subnet. You need to select the subnet where the DRS instance resides, and there are available IP addresses for the subnet. To ensure that the verification instance is successfully created, only subnets with DHCP enabled are displayed.
Specify EIP	This parameter is available when you select **Public network** for **Network Type**. Select an EIP to be bound to the DRS instance. DRS will automatically bind the specified EIP to the DRS instance and unbind the EIP after the task is complete.

- AZ

Figure 1-3 AZ

Table 1-4 Task type information

Parameter	Description
AZ	Select the AZ where you want to create the DRS task. Selecting the one housing the source or destination database can provide better performance.

- Enterprise Project and Tags

Table 1-5 Enterprise Project and Tags

Parameter	Description
Enterprise Project	An enterprise project you would like to use to centrally manage your cloud resources and members. Select an enterprise project from the drop-down list. The default project is **default**. To create an enterprise project, click **Enterprise** in the upper right corner of the console. The **Enterprise Project Management Service** page is displayed. For details, see **Creating an Enterprise Project** in *Enterprise Management User Guide*.
Tags	– Tags a task. This configuration is optional. Adding tags helps you better identify and manage your tasks. Each task can have up to 20 tags. – After a task is created, you can view its tag details on the **Tags** tab. For details, see **Tag Management**.

NOTE

If a task fails to be created, DRS retains the task for three days by default. After three days, the task automatically stops.

Step 3 After the verification instance is created, on the **Configure Source and Destination Databases** page, specify source and destination database information. Then, click **Test Connection** for both the source and destination databases to check whether they have been connected to the verification instance. After the connection tests are successful, select the check box before the agreement and click **Next**.

In different data flow scenarios, the source and destination database settings are different. Specify the required parameters based on the GUI.

- Source database information

Figure 1-4 Source database information

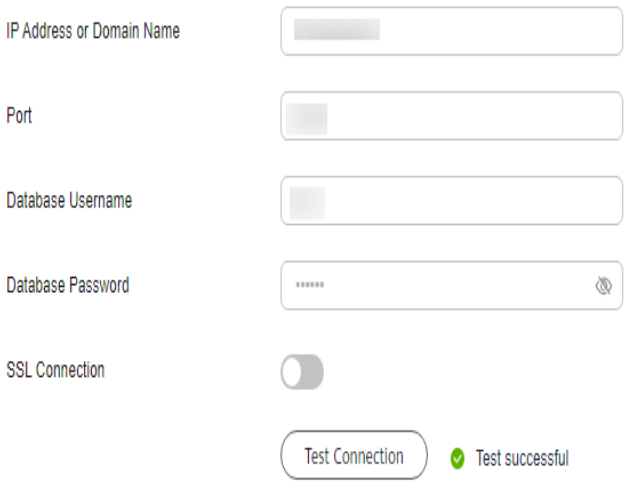


Table 1-6 Source database settings

Parameter	Description
IP Address or Domain Name	The IP address or domain name of the source database.
Port	The port of the source database. Range: 1 – 65535
Database Username	The username for accessing the source database.
Database Password	The password for the database username. You can change the password if necessary. To change the password, perform the following operation after the task is created: If the task is in the **Starting**, **Full synchronization**, **Incremental synchronization**, or **Incremental synchronization failed** status, in the **Connection Information** area on the **Basic Information** tab, click **Modify Connection Details**. In the displayed dialog box, change the password.
SSL Connection	If SSL connection is required, enable SSL on the source database, ensure that related parameters have been correctly configured, and upload an SSL certificate. **NOTE** – The maximum size of a single certificate file that can be uploaded is 500 KB. – If SSL is disabled, your data may be at risk.

NOTE

The IP address, port, username, and password of the source database are encrypted and stored in the database and the DRS instance, and will be cleared after the task is deleted.

- Destination database information

Figure 1-5 Destination database information

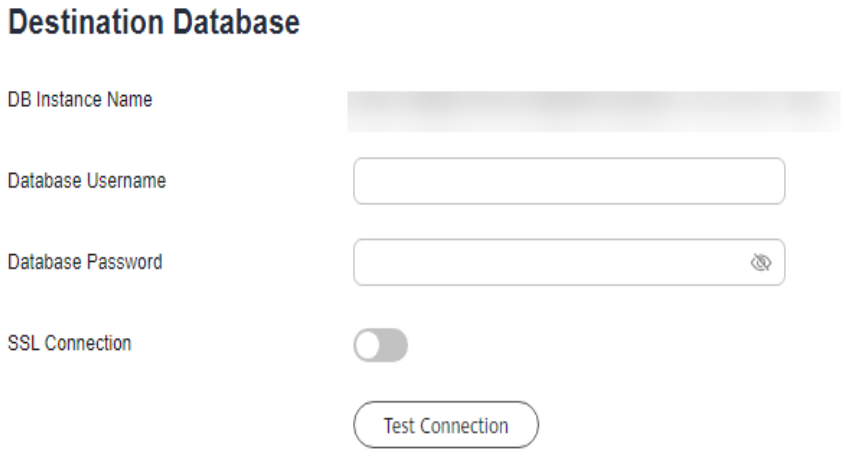


Table 1-7 Destination database settings

Parameter	Description
DB Instance Name	The RDS DB instance you selected when creating the verification task. This parameter cannot be changed.
Database Username	The username for accessing the destination database.
Database Password	The password for the database username. You can change the password if necessary. To change the password, perform the following operation after the task is created: If the task is in the **Starting**, **Full synchronization**, **Incremental synchronization**, or **Incremental synchronization failed** status, in the **Connection Information** area on the **Basic Information** tab, click **Modify Connection Details**. In the displayed dialog box, change the password.
SSL Connection	If SSL connection is required, enable SSL on the destination database, ensure that related parameters have been correctly configured, and upload an SSL certificate. **NOTE** – The maximum size of a single certificate file that can be uploaded is 500 KB. – If SSL is disabled, your data may be at risk.

> **NOTE**
>
> The username and password of the destination database are encrypted and stored in the database and the DRS instance during data verification. After the task is deleted, the username and password are permanently deleted.

Step 4 On the **Select Objects** page, select objects and click **Next**.

Figure 1-6 Selecting objects

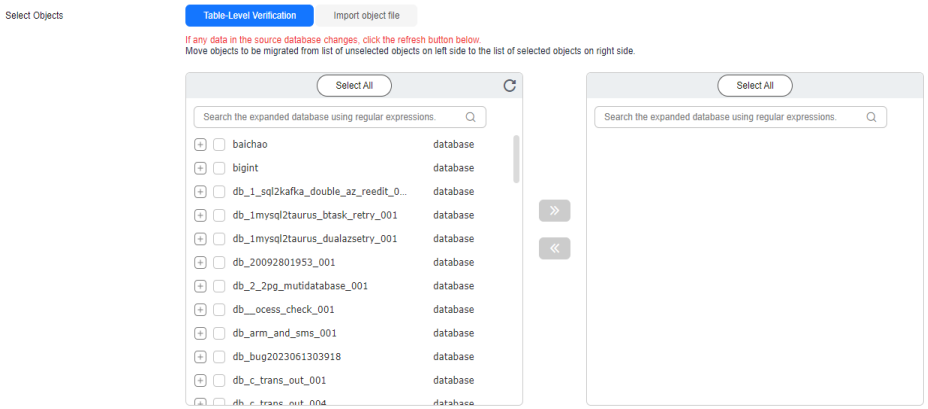


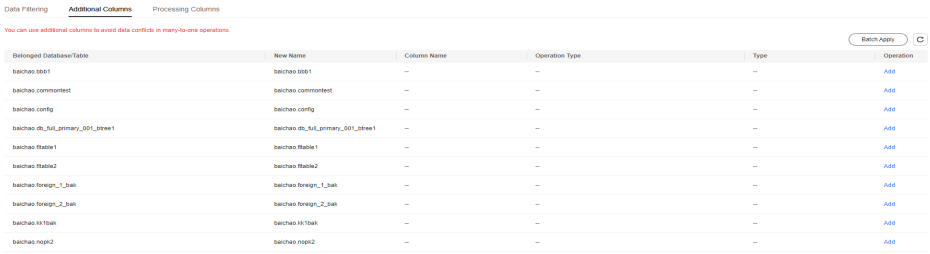
Table 1-8 Objects

Parameter	Description
Select Objects	The left pane displays the source database objects, and the right pane displays the selected objects. You can verify tables or import object files based on your service requirements. • If the verification objects in source and destination databases have different names, you can map the source object name to the destination one in the right pane. For details, see **Changing Object Names (Mapping Object Names)**. – If the database table name contains characters other than letters, digits, and underscores (_), or the mapped database table name contains hyphens (-) and number signs (#), the name length cannot exceed 42 characters. • Import an object file. For details, see**Importing Synchronization Objects**. **NOTE** • To quickly select the desired database objects, you can use the search function. • If there are changes made to the source databases or objects, click in the upper right corner to update the objects to be verified. • If an object name contains spaces, the spaces before and after the object name are not displayed. If there are two or more consecutive spaces in the middle of the object name, only one space is displayed. • The name of the selected object cannot contain spaces.

Step 5 On the **Verification Rules** page, configure verification rules.

- If you do not need to configure a verification rule, click **Next**.
- If data processing is required, select **Data Filtering**, **Additional Columns**, or **Processing Columns**. For details about how to configure related rules, see **Processing Data**.

Figure 1-7 Verification rule



Step 6 On the **Check Task** page, check the verification task.

- If any check fails, review the cause and rectify the fault. After the fault is rectified, click **Check Again**.

  For details about how to handle check failures, see **Solutions to Failed Check Items** in *Data Replication Service User Guide*.
- If all check items are successful, click **Next**.

  NOTE

  You can proceed to the next step only when all checks are successful. If there are any items that require confirmation, view and confirm the details first before proceeding to the next step.

Step 7 On the **Confirm Task** page, specify Send Notifications, SMN Topic, and Stop Abnormal Tasks After, confirm that the configured information is correct, select the check box before the agreement, and click **Submit** to submit the task.

Figure 1-8 Task startup settings

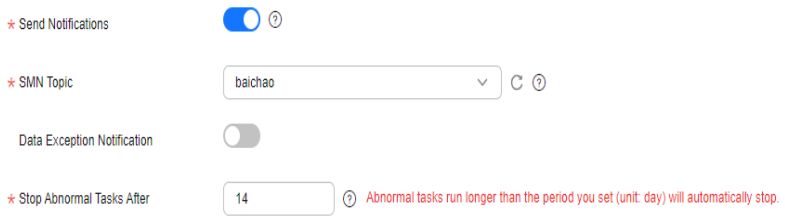


Table 1-9 Task startup settings

Parameter	Description
Send Notifications	This parameter is optional. After enabled, select a SMN topic. If the status of the verification task is abnormal, DRS will send you a notification.
SMN Topic	This parameter is available only after you enable **Send Notifications** and create a topic on the SMN console and add a subscriber. For details, see ***Simple Message Notification User Guide***.
Data Exception Notification	This parameter is optional. After enabled, DRS will send a notification if the task data is abnormal.
Stop Abnormal Tasks After	Number of days after which an abnormal task is automatically stopped. The value must range from 14 to 100. The default value is **14**. **NOTE** • You can set this parameter only for pay-per-use tasks. • Tasks in the abnormal state are still charged. If tasks remain in the abnormal state for a long time, they cannot be resumed. Abnormal tasks run longer than the period you set (unit: day) will automatically stop to avoid unnecessary fees.

Step 8 After the task is submitted, you can view and **manage it** on the **Data Verification Management** page.

- You can view the task status. For more information about task status, see **1.2.9 Task Statuses**.
- You can click in the upper right corner to view the latest task status.
- By default, DRS retains a task in the **Configuration** state for three days. After three days, DRS automatically deletes background resources, but the task status remains unchanged. When you configure the task again, DRS applies for resources for the task again. In this case, the IP address of the DRS instance changes.
- For a public network task, DRS needs to delete background resources after you stop the task. The EIP bound to the task cannot be restored to the **Unbound** state until background resources are deleted.

----End

1.2 Data Verification Management

1.2.1 Viewing Task Information

After creating a verification task, you can view its basic information, including task information, verification instance information, connection information, and mapping information.

Prerequisites

- A verification task has been created.

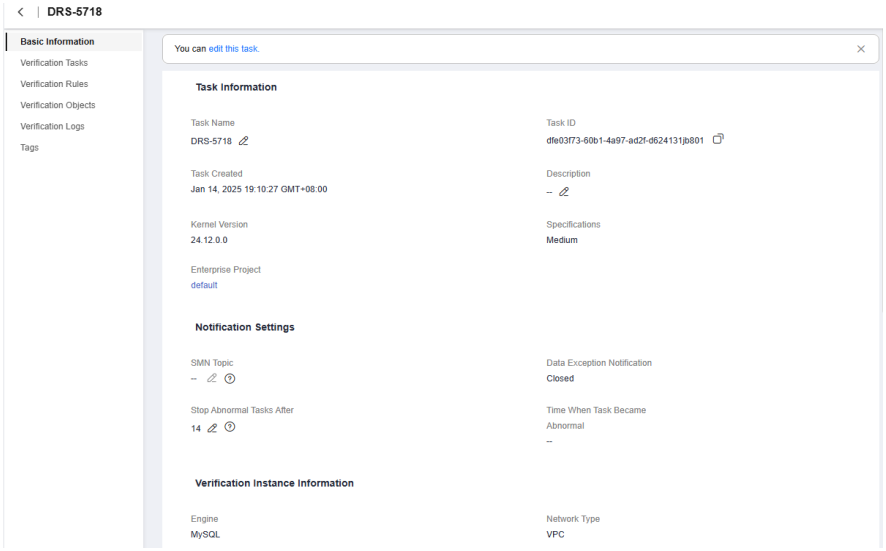
Procedure

Step 1 On the **Data Verification Management** page, click the target task in the **Task Name/ID** column.

Step 2 On the displayed **Basic Information** tab page, view task details.

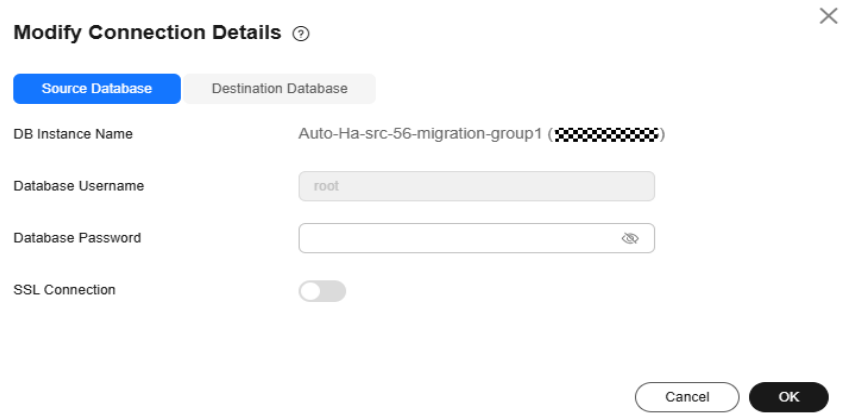
You can see the task name, description, and creation time.

Figure 1-9 Basic information



- Click  to modify information such as a task name, description, and resource group.
- Click  to copy the task ID.
- Click **Modify Connection Details** to modify the connection information of the source and destination databases. After the modification is complete, click **OK**.

Figure 1-10 Connection information



NOTE

If the task fails because the database password was changed, you can modify the connection information to restore the task.

----End

1.2.2 Verification Tasks

Scenarios

This section describes how to compare verification items to check if there are any differences between source and destination databases. To minimize the impact on services and shorten the service interruption duration, the following comparison methods are provided:

- Object-level comparison: It compares databases, tables, and indexes.
- Data-level row comparison: It compares the number of rows in the tables to be synchronized. This comparison method is recommended because it is fast.
- Data-level static value comparison: It checks whether data in the synchronized table is consistent. The time required for comparison depends on the amount of data in the table.

NOTE

Value comparison and row comparison cannot be performed at the same time.

Value comparison and object-level comparison cannot be performed at the same time.

Prerequisites

- A verification task has been started.

Comparison Description

Table 1-10 Data verification capability of each data flow

Synchronization Direction	Data Flow	Object-Level Comparison	Row Comparison	Account-Level Comparison	Static Value Comparison
To the cloud	MySQL -> MySQL	Supported	Supported	Not supported	Supported
To the cloud	MySQL -> PostgreSQL	Supported	Supported	Not supported	Not supported
To the cloud	MySQL -> GaussDB Distributed	Supported	Supported	Not supported	Supported
To the cloud	MySQL -> GaussDB Centralized	Supported	Supported	Not supported	Supported
To the cloud	MySQL -> TaurusDB	Supported	Supported	Not supported	Supported
To the cloud	PostgreSQL -> PostgreSQL	Supported	Supported	Supported	Supported
To the cloud	PostgreSQL -> GaussDB Centralized	Supported	Supported	Not supported	Supported
To the cloud	PostgreSQL -> GaussDB Distributed	Supported	Supported	Not supported	Supported

To the cloud	DDM -> MySQL	Supported	Supported	Not supported	Not supported
To the cloud	DDM -> DDM	Supported	Supported	Not supported	Not supported
To the cloud	Oracle -> MySQL	Supported	Supported	Not supported	Supported
To the cloud	Oracle -> TaurusDB	Supported	Supported	Not supported	Supported
To the cloud	Oracle -> GaussDB Centralized	Supported	Supported	Not supported	Supported
To the cloud	Oracle -> GaussDB Distributed	Supported	Supported	Not supported	Supported
To the cloud	Oracle -> DDM	Supported	Supported	Not supported	Not supported
To the cloud	Oracle > PostgreSQL	Supported	Supported	Not supported	Not supported
To the cloud	DB2 for LUW -> GaussDB Centralized	Supported	Supported	Not supported	Supported
To the cloud	DB2 for LUW -> GaussDB Distributed	Supported	Supported	Not supported	Supported
To the cloud	TiDB -> TaurusDB	Supported	Supported	Not supported	Not supported

To the cloud	Microsoft SQL Server -> GaussDB(DWS)	Supported	Supported	Not supported	Not supported
To the cloud	Microsoft SQL Server -> GaussDB Centralized	Supported	Supported	Not supported	Supported
To the cloud	Microsoft SQL Server -> GaussDB Distributed	Supported	Supported	Not supported	Supported
To the cloud	Microsoft SQL Server -> Microsoft SQL Server	Supported	Supported	Not supported	Not supported
To the cloud	MongoDB -> DDS	Supported	Supported	Not supported	Supported
To the cloud	MariaDB -> MariaDB	Supported	Supported	Not supported	Supported
To the cloud	MariaDB -> MySQL	Supported	Supported	Not supported	Supported
To the cloud	MariaDB -> TaurusDB	Supported	Supported	Not supported	Supported
To the cloud	TaurusDB -> TaurusDB	Supported	Supported	Not supported	Supported
To the cloud	Dynamo -> GeminiDB Dynamo	Supported	Not supported	Not supported	Not supported
Out of the cloud	MySQL -> MySQL	Supported	Supported	Not supported	Supported

Out of the cloud	MySQL -> CSS/ES	Supported	Supported	Not supported	Not supported
Out of the cloud	DDM -> MySQL	Supported	Supported	Not supported	Not supported
Out of the cloud	DDM -> Oracle	Supported	Supported	Not supported	Not supported
Out of the cloud	DDS -> MongoDB	Supported	Supported	Not supported	Supported
Out of the cloud	PostgreSQL -> PostgreSQL	Supported	Supported	Not supported	Supported
Out of the cloud	GaussDB Centralized -> MySQL	Supported	Supported	Not supported	Not supported
Out of the cloud	GaussDB Centralized -> Oracle	Supported	Supported	Not supported	Supported
Out of the cloud	GaussDB Centralized -> GaussDB Distributed	Supported	Supported	Not supported	Supported
Out of the cloud	GaussDB Centralized -> GaussDB Centralized	Supported	Supported	Not supported	Supported

Out of the cloud	GaussDB Centralized -> Informix	Supported	Supported	Not supported	Supported
Out of the cloud	GaussDB Centralized -> PostgreSQL	Supported	Supported	Not supported	Supported
Out of the cloud	GaussDB Distributed -> MySQL	Supported	Supported	Not supported	Not supported
Out of the cloud	GaussDB Distributed -> Oracle	Supported	Supported	Not supported	Supported
Out of the cloud	GaussDB Distributed -> GaussDB Distributed	Supported	Supported	Not supported	Not supported
Out of the cloud	GaussDB Distributed -> GaussDB Centralized	Supported	Supported	Not supported	Not supported
Out of the cloud	GaussDB Distributed -> PostgreSQL	Supported	Supported	Not supported	Supported
Out of the cloud	TaurusDB -> MySQL	Supported	Supported	Not supported	Supported
Out of the cloud	TaurusDB -> CSS/ES	Supported	Supported	Not supported	Not supported

Out of the cloud	TaurusDB -> Oracle	Supported	Supported	Not supported	Not supported
Out of the cloud	MariaDB -> MariaDB	Supported	Supported	Not supported	Supported
Self-built to self-built	Oracle -> GaussDB Centralized	Supported	Supported	Not supported	Supported
Self-built to self-built	Oracle -> GaussDB Distributed	Supported	Supported	Not supported	Supported
Self-built to self-built	MySQL -> CSS/ES	Supported	Supported	Not supported	Not supported
Self-built to self-built	MySQL -> GaussDB Centralized	Supported	Supported	Not supported	Not supported

Self-built to self-built	GaussDB Centralized -> Oracle	Supported	Supported	Not supported	Supported
Self-built to self-built	GaussDB Centralized -> GaussDB Centralized	Supported	Supported	Not supported	Not supported
Self-built to self-built	GaussDB Distributed -> Oracle	Supported	Supported	Not supported	Supported
Self-built to self-built	GaussDB Distributed -> GaussDB Distributed	Supported	Supported	Not supported	Not supported
Self-built to self-built	DB2 for LUW -> GaussDB Centralized	Supported	Supported	Not supported	Supported

Self-built to self-built	DB2 for LUW -> GaussDB Distributed	Supported	Supported	Not supported	Supported

Data comparison can clearly show whether data in the source database is different from that in the destination database. Currently, the following data types do not support value comparison, which will be skipped.

Table 1-11 Data types that do not support value comparison

Source Database	Data Type
MySQL	TINYBLOB, BLOB, MEDIUMBLOB, LONGBLOB, TINYTEXT, TEXT, MEDIUMTEXT, and LONGTEXT
GaussDB	TEXT, CLOB, BLOB, BYTEA, INTERVAL DAY TO SECOND, and INTERVAL
Oracle	BLOB, NCLOB, CLOB, LONG RAW, LONG, INTERVAL DAY TO SECOND, INTERVAL YEAR TO MONTH, UROWID, BFILE, XMLTYPE, and SDO_GEOMETRY
Microsoft SQL Server	TEXT, NTEXT, IMAGE, BINARY, VARBINARY, HIERARCHYID, XML, and TIMESTAMP
DB2 for LUW	CLOB, DBCLOB, BLOB, BINARY, VARBINARY, and TEXT
PostgreSQL	lob, text, byte, interval

DRS does not support value comparison if primary key columns contain the following data types, which will be grouped into a specified table that does not support comparison.

Table 1-12 Primary key data types that do not support value comparison

Source Database	Data Type
MySQL	TINYBLOB, BLOB, MEDIUMBLOB, LONGBLOB, TINYTEXT, TEXT, MEDIUMTEXT, LONGTEXT, FLOAT, TIMESTAMP, DATE, and DATETIME
GaussDB	TEXT, CLOB, BLOB, BYTEA, INTERVAL DAY TO SECOND, INTERVAL, REAL, DOUBLE PRECISION, BOOL, TIME, TIMETZ, TIMESTAMP, TIMESTAMPTZ, and DATE

Source Database	Data Type
Oracle	BLOB, NCLOB, CLOB, LONG RAW, LONG, INTERVAL DAY TO SECOND, INTERVAL YEAR TO MONTH, UROWID, BFILE, XMLTYPE, SDO_GEOMETRY, BINARY_FLOAT, BINARY_DOUBLE, FLOAT, RAW, TIMESTAMP, TIMESTAMP WITH TIME ZONE, TIMESTAMP WITH LOCAL TIME ZONE, and DATE
Microsoft SQL Server	FLOAT, REAL, DATE, DATETIME, DATETIME2, DATETIMEOFFSET, TIME, TIMESTAMP, TEXT, NTEXT, IMAGE, BINARY, and VARBINARY
DB2 for LUW	CLOB, DBCLOB, BLOB, BINARY, VARBINARY, and TEXT

Creating a Comparison Task

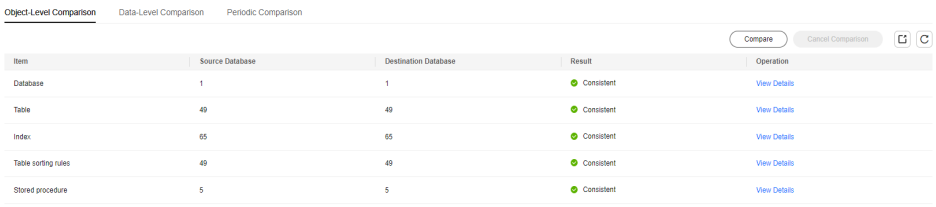
Step 1 On the **Data Verification Management** page, click the target task in the **Task Name/ID** column.

Step 2 Click the **Verification Tasks** tab.

Step 3 Select objects to be compared and create a comparison task.

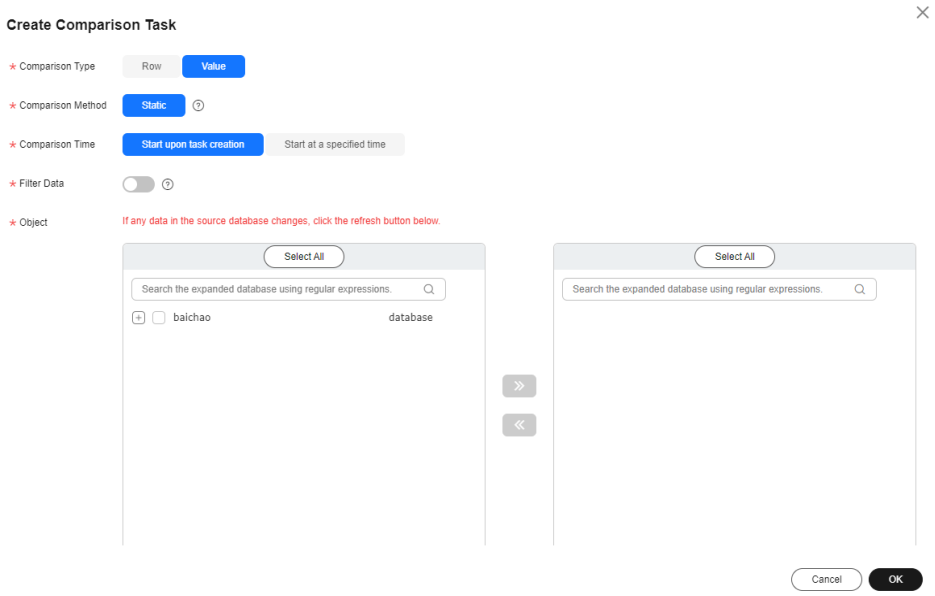
- On the **Object-Level Comparison** tab page, click **Compare**. Wait for a while and click to check whether **Consistent** is displayed in the **Result** column for all comparison items. You can locate a comparison item and click **View Details** in the **Operation** column.

  Figure 1-11 Object-level comparison

- To create a data-level comparison task, click **Create Comparison Task** on the **Data-Level Comparison** tab page, specify **Comparison Type** and **Object** in the displayed dialog box, and click **OK**.

Figure 1-12 Creating a data-level comparison task

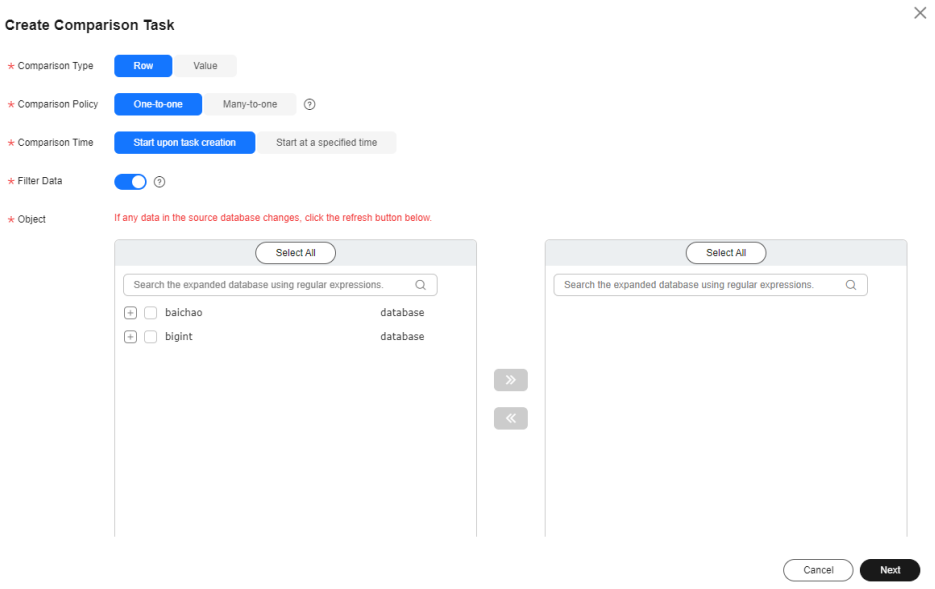


- **Row**: Check whether the number of rows in the source table is the same as that in the destination table.
- **Value**: Check whether the source table has same data as the destination table.

  Static: This comparison method is applicable at off-peak hours when no data changes.
- **Object**: Select objects to be compared.

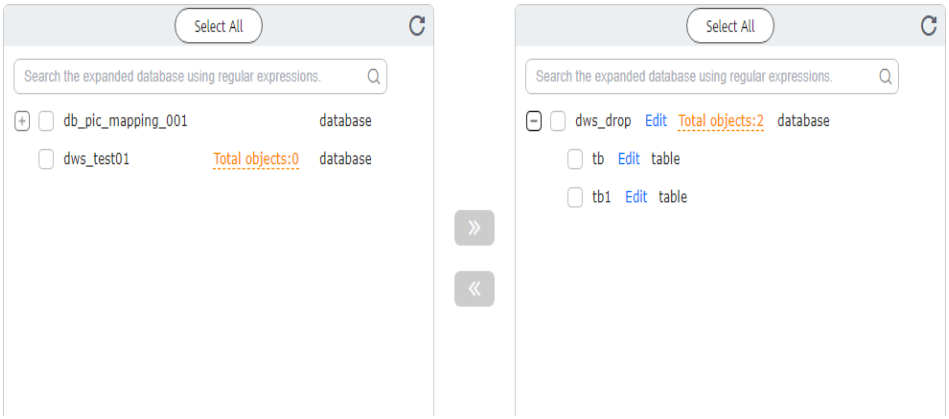
- To create a comparison task when specified data needs to be filtered out, click the **Data-Level Comparison** tab, click **Create Comparison Task**, set **Comparison Type** and **Comparison Method**, and Enable **Filter Data**.

  Figure 1-13 Creating a comparison task when specified data needs to be filtered out



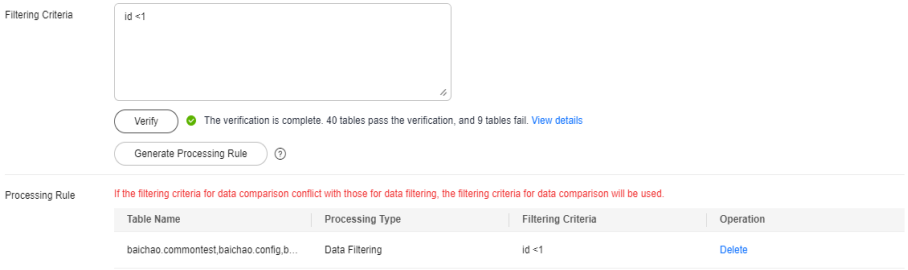
Select objects and click **Next**. Select tables, enter filtering criteria, and click **Verify**.

Figure 1-14 Selecting objects



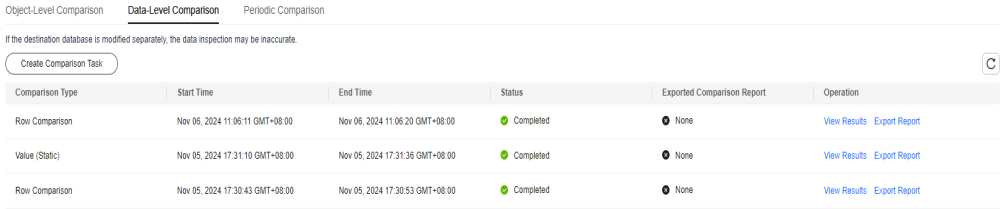
After the verification is complete, click **Generate Processing Rule** and click **Yes** to create a comparison task.

Figure 1-15 Processing Rule



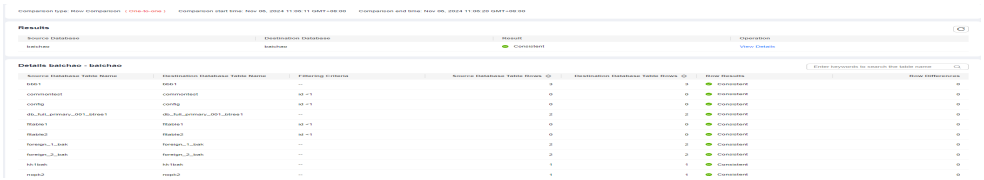
Step 4 After the comparison creation task is submitted, the **Data-Level Comparison** tab is displayed. Click to refresh the list and view the comparison result of the specified comparison type.

Figure 1-16 Data-level comparison



- To view row or value comparison details, click **View Results**.

Figure 1-17 Data-level comparison details



- Click **Export Report** to export the comparison report.
- Click **Download** to download the exported report to your local PC.

NOTE

- You can also view comparison details of canceled comparison tasks.
- The exported report is retained for 24 hours. Download it to your local PC as soon as possible.

----End

1.2.3 Selecting Objects

After creating a real-time verification task, you can add or remove objects in tables to be verified and submit the verification task again.

Prerequisites

- A verification task has been created.

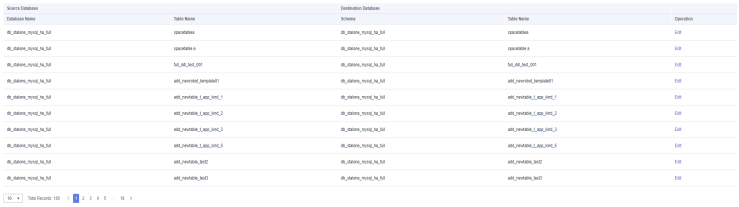
Procedure

Step 1 On the **Data Verification Management** page, click the target task in the **Task Name/ID** column.

Step 2 Choose **Verification Objects**.

Step 3 Locate the target table and click **Edit** in the **Operation** column.

Figure 1-18 Selecting objects



Step 4 On the **Verification Objects** page, select objects by referring to **Step 4**.

Step 5 On the **Verification Rules** page, select tables to be verified.

- If you do not need a verification rule, click **Next**.
- To create a verification rule, perform **Step 5**.

Step 6 On the **Check Task** page, wait until the precheck is complete and click **Next**.

Step 7 On the **Confirm Task** page, confirm the verification task information and click **Submit and Start**.

----End

1.2.4 Verification Rules

You can view rules and details of a verification task.

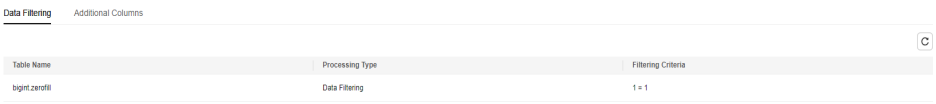
Procedure

Step 1 On the **Data Verification Management** page, click the target task in the **Task Name/ID** column.

Step 2 Choose **Verification Rules** to view verification rules of the current task.

You can see the selected objects, objects for which a verification rule takes effect, and filtering criteria.

Figure 1-19 Verification rules



----End

1.2.5 Verification Logs

Prerequisites

- A verification task has been created.

Procedure

Step 1 On the **Data Verification Management** page, click the target task in the **Task Name/ID** column.

Step 2 On the **Verification Logs** page, click **Run Logs** to view run logs of the current task.

You can view time, levels, and descriptions of the logs.

Figure 1-20 Verification Logs

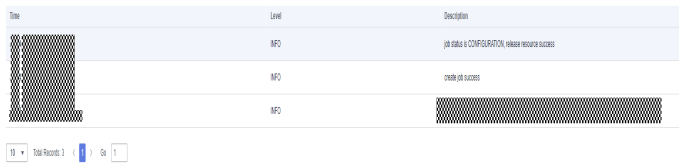
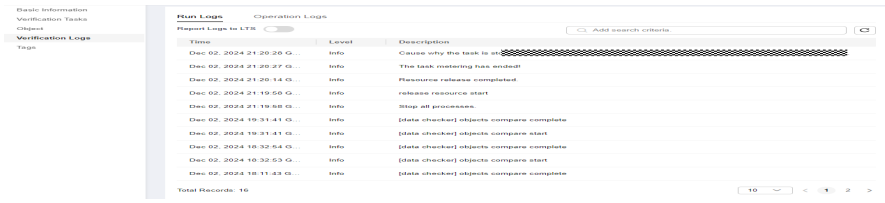
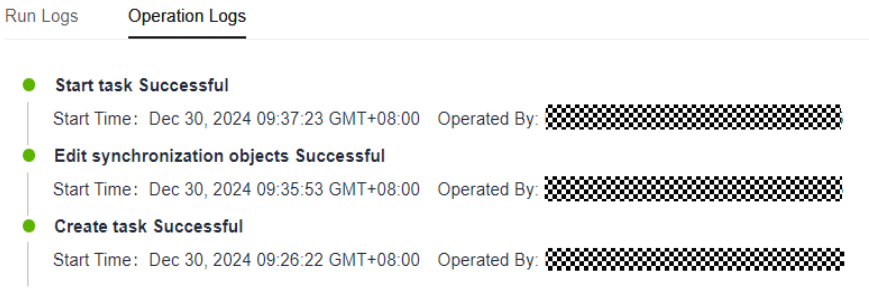


Figure 1-21 Run Logs



On the **Verification Logs** page, click **Operation Logs** to view the operation logs of the current task.

Figure 1-22 Operation Logs



----End

1.2.6 Cloning a Task

You can clone configurations of an existing task.

NOTE

- The source and destination database passwords will not be cloned. You need to enter the passwords again for the new task.
- If configurations of an existing task are being changed and then saved to databases, the changed configurations will also be cloned to the new task.
- After a clone task is created, another IP address is assigned to the new task node. This IP address is different from that of the original task node, so you need to adjust the network configuration to ensure that the new task node can communicate with the source and destination databases.

Prerequisites

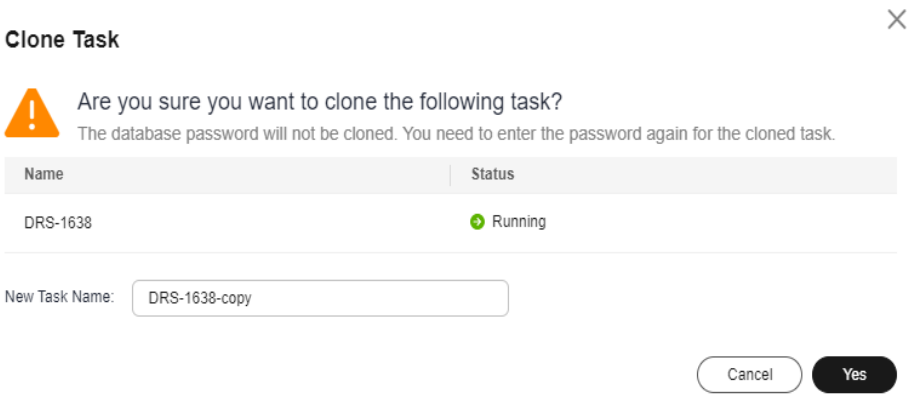
- A verification task has been created.

Procedure

Step 1 On the **Data Verification Management** page, locate the target task and click **Clone** in the **Operation** column.

Step 2 In the displayed dialog box, confirm the new task name and the IP address assigned to the task node. Click **OK** to submit the task.

Figure 1-23 Cloning a task



Step 3 After the task is submitted and the task clone is complete, the task status changes to **Configuration**. You can click **Edit** in the **Operation** column, enter the source and destination database passwords again, and edit and start the task.

----End

1.2.7 Stopping a Task

After a verification task is complete, you can stop it.

NOTICE

A stopped task cannot be restarted.

Prerequisites

- A verification task has been created and started.

Procedure

Step 1 On the **Data Verification Management** page, locate the target task and click **Stop** in the **Operation** column.

Step 2 In the displayed dialog box, click **Yes**.

----End

1.2.8 Deleting a Task

You can delete a stopped verification task. Deleted tasks will no longer be displayed in the task list. Exercise caution when performing this operation.

Prerequisites

- A verification task has been created and started.

Procedure

Step 1 On the **Data Verification Management** page, locate the target task and click **Delete** in the **Operation** column.

Step 2 Click **Yes**.

----End

1.2.9 Task Statuses

Multiple statuses provide a visual representation of where each task stands in its lifecycle, facilitating task management. **Table 1-13** lists task statuses and descriptions.

Table 1-13 Task statuses and descriptions

Status	Description
Configuration	A created task has not been started. You can continue to configure it.
Starting	A verification task is being started.
Running	A verification task is running.
Start failed	A verification task failed to be started.
Stopping	The instance and resources used by a verification task are being released.
Stopped	The instance occupied by a verification task is released successfully.

