Data Replication Service

User Guide

 Issue
 01

 Date
 2025-03-04





Copyright © Huawei Cloud Computing Technologies Co., Ltd. 2025. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Cloud Computing Technologies Co., Ltd.

Trademarks and Permissions

NUAWEI and other Huawei trademarks are the property of Huawei Technologies Co., Ltd. All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei Cloud and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Cloud Computing Technologies Co., Ltd.

Address: Huawei Cloud Data Center Jiaoxinggong Road Qianzhong Avenue Gui'an New District Gui Zhou 550029 People's Republic of China

Website: https://www.huaweicloud.com/intl/en-us/

Contents

I Creating a Verification Task	
2 Data Verification Management	
2.1 Viewing Task Information	
2.2 Verification Tasks	
2.3 Selecting Objects	
2.4 Verification Rules	
2.5 Verification Logs	
2.6 Cloning a Task	
2.7 Stopping a Task	
2.8 Deleting a Task	
2.9 Task Statuses	

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.

Table 1-1	Supported	databases
-----------	-----------	-----------

Source DB Type	Destination DB Type
 On-premises MySQL ECS-hosted MySQL Other cloud MySQL RDS for MySQL 	RDS for MySQL
	TaurusDB
	RDS for PostgreSQL
	GaussDB Distributed
	GaussDB Centralized
	RDS for MariaDB
RDS for MySQL	On-premises MySQLECS-hosted MySQLOther cloud MySQL
	CSS/ES
	On-premises OracleECS-hosted Oracle
	On-premises MariaDBECS-hosted MariaDBOther cloud MariaDB

Source DB Type	Destination DB Type
On-premises MySQLECS-hosted MySQL	CSS/ES
On-premises PostgreSQL	RDS for PostgreSQL
ECS-hosted PostgreSQL	GaussDB Centralized
RDS for PostgreSQL	GaussDB Distributed
RDS for PostgreSQL	On-premises PostgreSQLECS-hosted PostgreSQL
DDM	RDS for MySQL
	On-premises MySQLECS-hosted MySQLOther cloud MySQL
	DDM
	On-premises OracleECS-hosted Oracle
On-premises Oracle	RDS for MySQL
ECS-hosted Oracle	TaurusDB
	RDS for PostgreSQL
	GaussDB Centralized
	GaussDB Distributed
	DDM
GaussDB Distributed	On-premises MySQLECS-hosted MySQLOther cloud MySQLRDS for MySQL
	On-premises OracleECS-hosted Oracle
	GaussDB Distributed
	GaussDB Centralized
GaussDB Centralized	 On-premises MySQL ECS-hosted MySQL Other cloud MySQL RDS for MySQL

Source DB Type	Destination DB Type
	On-premises OracleECS-hosted Oracle
	GaussDB Distributed
	GaussDB Centralized
TaurusDB	TaurusDB
	 On-premises MySQL ECS-hosted MySQL Other cloud MySQL RDS for MySQL
	CSS/ES
	On-premises OracleECS-hosted Oracle
DDS	Self-built MongoDBOther cloud MongoDB
DB2 for LUW	GaussDB Distributed
	GaussDB Centralized
TiDB	TaurusDB
-	GaussDB Centralized
	GaussDB Distributed
	Microsoft SQL Server
 On-premises MongoDB ECS-hosted MongoDB Other cloud MongoDB DDS 	DDS
 On-premises MariaDB ECS-hosted MariaDB Other cloud MariaDB 	RDS for MariaDB
On-premises MariaDB	RDS for MySQL
ECS-hosted MariaDBOther cloud MariaDB	TaurusDB
RDS for MariaDB	 On-premises MariaDB ECS-hosted MariaDB Other cloud MariaDB

Source DB Type	Destination DB Type
Cassandra	GeminiDB Cassandra
DynamoDB on other clouds (web services)	GeminiDB Dynamo NOTE Only whitelisted users can use this function.
Redis	GenimiDB Redis
GenimiDB Redis	Redis

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
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

 Table 1-2
 Database permissions

Database	Required Permission
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

4	Only the task name and description ca The system will create virtual resources in	be modified. Other settings cannot be modified after you click Create Now on this page. nediately after you click Create Now. Virtual resources cannot be modified after being created so no settings except the task name and description can be n	nodified.
	Region	CN Southwest-Guiyang-DBIntegrationV v	
	Project	CN Southwest-Guiyang-DBIntegrationVerifi V	
*	Task Name	DR\$-5117 💿	
	Description	0	
		0/256 //	

Table 1-3 Task information

Parameter	Description
Region	The region where the replication instance is deployed. You can change the region.
Project	The project corresponds to the current region and can be changed.
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

Verification Instance Information \odot			
The following information cannot be modified	d after you go to the next page.		
* Data Flow	To the cloud Out of the cloud Set-Foult to set-Foult		
* Source DB Engine	MySQL Oracle Cassendra DB2 for LUW DDM Dynamo Informix MariaDB MongoDB ProtigneSOL Redis Redis Microsoft SOL Server		
	GaussDB(for MySOL) TIDB		
* Destination DB Engine	MyOX. GeussD8 Distributed GeussD8 Primary/Standby MarieD8 PostgreSOL GeussD8(for MySOL)		
* Network Type	VPC v		
* Destination DB Instance	Select an instance v C View DB Instance View Unselectable DB Instance		
* Verification Instance Subnet	Select the submet v The IP address is allocated automatically but it can ① View Submets View Occupied IP Address		
* IP Address Type	PM IPv4IPv6 dad stack:		

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.
	 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.
	For details about the data transfer fee generated using a public network, see EIP Price Calculator .

 Table 1-4 Verification instance information

 AZ
 Figure 1-3 AZ
 * AZ
 az1 az2 az3 az4 az5 AZ where the DRS instance is created. Selecting an AZ where the source or destination database is located provides better performance.

Table 1-5 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

Figure 1-4 Enterprise Project and Tags

* Enterprise Project	Select	~ (⑦ View Project Management ⑦
Tags TMS's p + Add You can	redefined tags are recommended for Tag add 20 more tags.	adding the same tag to	different cloud resources. Create predefined tags 🖄 📿

Table 1-6 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 .
	For more information about enterprise project, see <i>Enterprise Management User Guide</i> .
	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 <i>Enterprise</i> <i>Management User Guide</i> .

Parameter	Description
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.
	 If your organization has configured tag policies for DRS, add tags to tasks based on the policies. If a tag does not comply with the policies, task creation may fail. Contact your organization administrator to learn more about tag policies.
	 After a task is created, you can view its tag details on the Tags tab. For details, see Tag Management.

D 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 1-5 Source database information

IP Address or Domain Name		
Port		
Database Username		
Database Password		Ø
SSL Connection		
	Test Connection Ø Test successful	

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.

 Table 1-7
 Source database settings

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 1-6 Destination database information

Destination Database

DB Instance Name	
Database Username	
Database Password	
SSL Connection	
	Test Connection

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. 	

Table 1-8 Destination database settings

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 1-7 Selecting objects

Select Objects	Table-Level Verification Import object file			
	If any data in the source database changes, click the refrest Move objects to be migrated from list of unselected objects	h button below. on left side to the lis	t of selected objects	on right side.
	Select All		C	Select All
	Search the expanded database using regular expression	ons. Q		Search the expanded database using regular expressions. Q
	+ baichao	database	1	
	(+) bigint	database		
	+ db_1_sql2kafka_double_az_reedit_0	database	·	
	+ db_1mysql2taurus_btask_retry_001	database	>>>	
	+ db_1mysql2taurus_dualazsetry_001	database		
	+ db_20092801953_001	database		
	+ db_2_2pg_mutidatabase_001	database		
	+ dbocess_check_001	database		
	+ db_arm_and_sms_001	database		
	+ db_bug2023061303918	database		
	+ db_c_trans_out_001	database		
	→ dh c trans out 004	database		

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, seeImporting 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 $^{\rm C}$ 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.

Table 1-9 Objects

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 1-8 Verification rule

Data Filtering Additional Columns Processing Columns					
You can use additional columns to avoid data conflicts in many-to-one operations.					Batch Apply C
Betonged Database/Table	New Name	Column Name	Operation Type	Туре	Operation
baichao.bbb1	beichao.bbb1		88	-	Add
baichao.commontest	baichao.commontest		84	-	Add
baichao.config	baichao.config		84	-	Add
baichao.db_full_primary_001_btree1	baichao.db_ful_primary_001_btree1		88	-	Add
baicheo.ftable1	baichao.ftable1		88	-	Add
baicheo.ftable2	baichao.ftable2		88	-	Add
baichao.foreign_1_baix	baichao.foreign_1_bak		84	-	Add
baichao.foreign_2_baix	baichao foreign_2_bak		88	-	Add
baichao skitbaix	baichao McTbak			-	Add
baichao.nopi/2	beichao.nopk2			-	Add

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 1-9 Task startup settings

* Send Notifications	0
* SMN Topic	baichao v C 📀
Data Exception Notification	
* Stop Abnormal Tasks After	14 (D) Abnormal tasks run longer than the period you set (unit: day) will automatically stop.

Table 1-10 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 <i>Simple Message Notification User Guide</i> .				
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 **Task Statuses**.
- You can click C 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

2 Data Verification Management

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 2-1 Basic information

I

< DRS-5718		
Basic Information	You can edit this task.	×
Verification Tasks		
Verification Rules	Task Information	
Verification Objects		
Verification Logs	Task Name	Task ID
Tags	DRS-5718 🖉	dfe03f73-60b1-4a97-ad2f-d624131jb801
	Task Created	Description
	Jan 14, 2025 19:10:27 GMT+08:00	- 2
	Kernel Version	Specifications
	24.12.0.0	Medium
	Enterprise Project	
	default	
	Notification Settings	
	SMN Topic	Data Exception Notification
	- 22 (3)	Closed
	Stop Abnormal Tasks After	Time When Task Became
	14 2 3	Abnormal
	Verification Instance Information	
	Engine	Network Type
	MySQL	VPC

- Click \checkmark to modify information such as a task name, description, and resource group.
- Click ^{II} 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 2-2 Connection information

Modify Connection	Details ⑦	Х
Source Database	Destination Database	
DB Instance Name	Auto-Ha-src-56-migration-group1 (************************************	
Database Username	root	
Database Password	۵	
SSL Connection		
	Cancel OK	

D NOTE

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

----End

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 2-1 Data verification capability of each data flow
--

Sy nc hro niz ati on Dir ect ion	Data Flow	Object- Level Compari son	Row Compa rison	Accoun t-Level Compa rison	Static Value Compariso n
To the clo ud	MySQL -> MySQL	Supporte d	Support ed	Not support ed	Supported
To the clo ud	MySQL -> PostgreSQL	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	MySQL -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Supported
To the clo ud	MySQL -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported
To the clo ud	MySQL -> TaurusDB	Supporte d	Support ed	Not support ed	Supported
To the clo ud	PostgreSQL -> PostgreSQL	Supporte d	Support ed	Support ed	Supported
To the clo ud	PostgreSQL -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported

To the clo ud	PostgreSQL -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Supported
To the clo ud	DDM -> MySQL	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	DDM -> DDM	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	Oracle -> MySQL	Supporte d	Support ed	Not support ed	Supported
To the clo ud	Oracle -> TaurusDB	Supporte d	Support ed	Not support ed	Supported
To the clo ud	Oracle -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported
To the clo ud	Oracle -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Supported
To the clo ud	Oracle -> DDM	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	Oracle > PostgreSQL	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	DB2 for LUW -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported
To the clo ud	DB2 for LUW -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Supported

To the clo ud	TiDB -> TaurusDB	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	Microsoft SQL Server -> GaussDB(DWS)	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	Microsoft SQL Server -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported
To the clo ud	Microsoft SQL Server -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Supported
To the clo ud	Microsoft SQL Server -> Microsoft SQL Server	Supporte d	Support ed	Not support ed	Not supported
To the clo ud	MongoDB -> DDS	Supporte d	Support ed	Not support ed	Supported
To the clo ud	MariaDB -> MariaDB	Supporte d	Support ed	Not support ed	Supported
To the clo ud	MariaDB -> MySQL	Supporte d	Support ed	Not support ed	Supported
To the clo ud	MariaDB -> TaurusDB	Supporte d	Support ed	Not support ed	Supported
To the clo ud	TaurusDB -> TaurusDB	Supporte d	Support ed	Not support ed	Supported
To the clo ud	Dynamo -> GeminiDB Dynamo	Supporte d	Not support ed	Not support ed	Not supported

Ou t of the clo ud	MySQL -> MySQL	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	MySQL -> CSS/ES	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	DDM -> MySQL	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	DDM -> Oracle	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	DDS -> MongoDB	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	PostgreSQL -> PostgreSQL	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	GaussDB Centralized -> MySQL	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	GaussDB Centralized -> Oracle	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	GaussDB Centralized -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Supported

Ou t of the clo ud	GaussDB Centralized -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	GaussDB Centralized -> Informix	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	GaussDB Centralized -> PostgreSQL	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	GaussDB Distributed -> MySQL	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	GaussDB Distributed -> Oracle	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	GaussDB Distributed -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	GaussDB Distributed -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	GaussDB Distributed -> PostgreSQL	Supporte d	Support ed	Not support ed	Supported
Ou t of the clo ud	TaurusDB -> MySQL	Supporte d	Support ed	Not support ed	Supported

Ou t of the clo ud	TaurusDB -> CSS/ES	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	TaurusDB -> Oracle	Supporte d	Support ed	Not support ed	Not supported
Ou t of the clo ud	MariaDB -> MariaDB	Supporte d	Support ed	Not support ed	Supported
Sel f- bui lt to self - bui	Oracle -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported
lt					
Sel f- bui lt to self - bui	Oracle -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Supported
Sel f- bui lt to self - bui lt	MySQL -> CSS/ES	Supporte d	Support ed	Not support ed	Not supported

Sel f- bui lt to self - bui lt	MySQL -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Not supported
Sel f- bui lt to self - bui lt	GaussDB Centralized -> Oracle	Supporte d	Support ed	Not support ed	Supported
Sel f- bui lt to self - bui lt	GaussDB Centralized -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Not supported
Sel f- bui lt to self - bui lt	GaussDB Distributed -> Oracle	Supporte d	Support ed	Not support ed	Supported
Sel f- bui lt to self - bui lt	GaussDB Distributed -> GaussDB Distributed	Supporte d	Support ed	Not support ed	Not supported

Sel f- bui lt to self - bui lt	DB2 for LUW -> GaussDB Centralized	Supporte d	Support ed	Not support ed	Supported
Sel f- bui lt to self - bui lt	DB2 for LUW -> GaussDB Distributed	Supporte d	Support ed	Not support ed	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.

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

Table 2-2 Data types that do not support value comparison

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.

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
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

Table 2-3 Primary key data types that do not support value comparison

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.

Object-Level Comparison Data-Level Comparison Per

- **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 C 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 2-3 Object-level comparison

				Compare Cancel Comparison
Item	Source Database	Destination Database	Result	Operation
Database	1	1	Ocnsistent	View Details
Table	49	49	Consistent	View Details
Index	65	65	Consistent	View Details
Table sorting rules	49	49	 Consistent 	View Details
Stored procedure	5	5	 Consistent 	View Details

• 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**.

Create Comparison Task * Comparison Type Row * Comparison Method State * Comparison Time State upon task creation * Eliter Data Image: Comparison Time * Eliter Data Image: Comparison Time State at a specified time ** Eliter Data * Copied If any data in the source database changes, click the refresh button below. Select All Select All Select All Select All Image: Comparison Comparison Image: Comparison Time Select All Select All Select All Image: Comparison Comparison Image: Comparison Comparison Image: Comparison Comparison Image: Comparison Image: Comparison <th></th> <th></th> <th></th> <th></th> <th>\sim</th>					\sim
* Comparison Type Row Wake * Comparison Type Statt © * Comparison Time Statt upon task creation * Filter Data © © * Object I and task source database changes, click the refresh button below: * Select AI Search the expanded database using regular expressions. © • balchao * balchao * Select AI * balchao * Comparison Time * Select AI * Select AI * balchao * balc	Create Compari	son Task			X
• Comparison Meed Statt • Comparison Meed Statt upon Lask contailon • Filter Data • • • • • • • • • • • • • • • • • • •	* Comparison Type	Row Value			
• Comparison Time Stat at a specified time • Filter Data • • • • • • • • • • • • • • • • • • •	* Comparison Method	Static ③			
* Fiter Data * Object If any data in the source database changes, click the refresh button below. Select AI Search the expanded database using regular expressions. • balchao >>	* Comparison Time	Start upon task creation Start at a specified time			
toget If any data in the source database changes, click the refresh button below. Select AI Search the expanded database using regular expressions. Q D balchao database x x x x	* Filter Data	0			
Select All Select All Search the expanded database using regular expressions. Q Search the expanded database using regular expressions. Q baichao database main <limain< li=""> main</limain<>	* Object	If any data in the source database changes, click the refresh button below.			
Search the expanded database using regular expressions. Q baichao database >>		Select All		Select All	
+ baichao > <th></th> <th>Search the expanded database using regular expressions. Q</th> <th></th> <th>Search the expanded database using regular expressions. Q</th> <th></th>		Search the expanded database using regular expressions. Q		Search the expanded database using regular expressions. Q	
*		+ baichao database			
*					
			»		
			«		

Figure 2-4 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 2-5 Creating a comparison task when specified data needs to be filtered out

Create Compar	rison Task			>
* Comparison Type	Row Value			
* Comparison Policy	One-to-one Many-to-one 3			
* Comparison Time	Start upon task creation Start at a specified time			
* Filter Data	0			
* Object	If any data in the source database changes, click the refresh button below.			
	Select All		Select All	
	Search the expanded database using regular expressions. Q		Search the expanded database using regular expressions. Q	
	+ baichao database			
	+ bigint database			
		»		
		«		
			Cancel	t

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

Figure 2-6 Selecting objects

	Select All		C	Select All	С
Search the expanded database us	sing regular expression	ns. Q		Search the expanded database using regular expressions.	Q
+ db_pic_mapping_001		database		dws_drop Edit Total objects:2 database	
dws_test01	Total objects:0	database		tb Edit table	
			» «	🗌 tb1 Edit table	

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

Figure 2-7 Processing Rule

Filtering Criteria	id <1				
		4			
	Verify 🔮 The verification is comple	te. 40 tables pass the verification, and	9 tables fail. View details		
	Generate Processing Rule				
Processing Rule	If the filtering criteria for data comparison conf	ict with those for data filtering, the filte	ring criteria for data comparison will be used.		
	Table Name	Processing Type	Filtering Criteria	Operation	
	baichao.commontest,baichao.conflg,b	Data Filtering	id <1	Delete	

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

Figure 2-8 Data-level comparison

Object-Level Comparison	Data-Level Comparison Periodic Compariso	n				
If the destination database is modified Create Comparison Task	separately, the data inspection may be inaccurate.					С
Comparison Type	Start Time	End Time	Status	Exported Comparison Report	Operation	
Row Comparison	Nov 06, 2024 11:06:11 GMT+08:00	Nov 06, 2024 11:06:20 GMT+08:00	Completed	S None	View Results Export Report	
Value (Static)	Nov 05, 2024 17:31:10 GMT+08:00	Nov 05, 2024 17:31:36 GMT+08:00	Completed	None	View Results Export Report	
Row Comparison	Nov 05, 2024 17:30:43 GMT+08:00	Nov 05, 2024 17:30:53 GMT+08:00	Completed	None	View Results Export Report	

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

Figure 2-9 Data-level comparison details

Comparison of the Company of Company	Confinition (the state of the s					
Results					0	
bource Database	Deetin	ation Database	Nosult	Operation		
la ani a de anna	kontral-see		 Consident 	View Details		
Details balchao - balchao					Enter beyons is to search the table name O.	
America Database Table Name	Destination Database Table Name	Fallering Eritleria	Source Database Table Bows () Destination Database Tab	ne flower () Roow Results	Row Differences	
0.001	0001			a 👄 consistent		
commontest	commontent	s0 = 1	0	o 🗢 consistent		
come	come	60 - T	0	e considert		
db_full_primary_001_bfree1	db_full_primary_001_biree1		1 C	2 Consistent	0	
PE04040-3	FE0040 1	s0 = 1	0	0 Consistent	0	
Platford	Rate 3	nd = 1	0	o 🗢 Consistent	0	
foreign_1_bak	Forenges_1_3_bah		a	2 Consistent	0	
formiger_2_both	formign_2_book		2	2 Consistent	0	
Febr Elizable	hdy Thomas		A	1 Currainteret	0	
Company	respin2		4	t Consistent		

- 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

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 2-10 Selecting objects

Source Estabase		Destination Detabase		
Delabere Name	Table Name	Scheme	Table Name	Operation
0.5600.010.0.01	spacetalies	Buttime_mouth_M	spacefalies	Eat
RUMPLING AND	specifile e	0.3899.768.90.0	specifier e	ER.
0.,5000,700,30,30	M_M_M_M	di_ublane_mergi_bi_bi	M_HU_M_M	Est.
ds_states_mod_ta_bit	add_rewrobat_templainit1	di_utaless_ment_ta_bit	add_meanstad_aerspikiel1	64
N.M.M.M.M.M.M.	adq.nextable_t.app_xind_1	0.0000.000.00	MURANELINUT	fat
0.3000,000,000	ML/W/896,1,886,0196,2	0.5699,9930,0.56	MU/MMRU, JAL JML 2	500
0.,5000,700,30,30	Critical (and and an	di_ublane_mergi_bi_bi	Circlast, within the	Est.
ds_states_mea_ba_bit	adurentatio_pape_ins_5	di_utaless_ment_ta_bit	alt_restate_japp_int_5	64
NUMBER AND A	101_rev100e_3452	0.000.000.000	ad_revise_342	Eat
0.36m,mil.363	Dot, HARMAN, MA	0.5699,953(3),56	ad, extension, and	500
10 v Tabi Recodo: 100 - < 1 2 2 4 5 10 5				

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

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 2-11 Verification rules

Data Finering	Additional Columns			
				C
Table Name		Processing Type	Filtering Criteria	
bigint zerofill		Data Filtering	1=1	

----End

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 2-12 Verification Logs

Time	Level	Description
	NFO	job status is COMFIGURATION, release resource success
	MFO	create job success
	NF0	
10 🔻 Total Records 3 < 1 > Ga 1		

Figure	2-13	Run	Logs
--------	------	-----	------

Basic Information	Run Lone Constation Los			
Verification Tasks	Run Luga Ophration Lug	1.		
Object	Report Logs to LTN		 Add search criteria. 	0
Verification Logs	Time	Level	Description	
Taga	Dec 02, 2024 21:20:28 G	Info	Cause why the task is str	
	Dec 02. 2024 21:20:27 G	Info	The task metering has ended!	
	Dec 02, 2024 21:20:14 G	Info	Resource release completed.	
	Den 02, 2024 21:19:58 G	Indu	release resource start	
	Dec 02. 2024 21:19:58 G	Info	Stop all processes.	
	Dec 02, 2024 19:31:41 G	Info	[data checker] objects compare complete	
	Due 02, 2024 19:31:41 G	Info	[data checker] objects compare start	
	Dec 02. 2024 10:32:54 G	Info	[data checker] objects compare complete	
	Dec 02, 2024 18:32:53 G	Info	[data checker] objects compare start	
	Dws 02, 2024 18:11:43 G	Indu	[data shushur] objests compare complete	
	Total Records: 16		10 ~ < 1 2	>

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

Figure 2-14 Operation Logs

Run Lo	ogs	Operation Logs			
•	Start tas	k Successful			
	Start Time	e: Dec 30, 2024 0	9:37:23 GMT+08:00	Operated By:	
•	Edit synd	chronization obje	cts Successful		
	Start Time	e: Dec 30, 2024 0	9:35:53 GMT+08:00	Operated By:	
•	Create ta	isk Successful			
	Start Time	e: Dec 30, 2024 0	9:26:22 GMT+08:00	Operated By:	

----End

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 2-15 Cloning a task

Clone Task		Х
Are The d	you sure you want to clone the following task? Iatabase password will not be cloned. You need to enter the password again for the cloned task.	
Name	Status	
DRS-1638	Running	
New Task Name:	DRS-1638-copy	
	Cancel Yes	

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

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

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

2.9 Task Statuses

Multiple statuses provide a visual representation of where each task stands in its lifecycle, facilitating task management. **Table 2-4** lists 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.

Table 2-4 Task statuses and description	Table 2-4	Task statuse	s and des	cription
---	-----------	--------------	-----------	----------